

**UNITED STATES
AIR FORCE**

OCCUPATIONAL SURVEY REPORT



**MEDICAL LABORATORY
AFSC 4T0X1**

OSSN: 2364

SEPTEMBER 1999

**OCCUPATIONAL ANALYSIS PROGRAM
AIR FORCE OCCUPATIONAL MEASUREMENT SQUADRON
AIR EDUCATION and TRAINING COMMAND
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NAVMAC	1			
382 TRS/TRR (917 MISSILE ROAD STE 3 SHEPPARD AFB TX 76311-2263)	1	1	1	1
382 TRS/XYAC (917 MISSILE ROAD STE 3 SHEPPARD AFB TX 76311-2263)	2		2	2

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PREFACE

This report presents the results of an Air Force Occupational Survey of the Medical Laboratory career ladder, Air Force Specialty Code (AFSC) 4T0X1. Authority for conducting occupational surveys is contained in AFI 36-2623. Computer products used in this report are available for use by operations and training officials.

The survey instrument was developed by Mr. Michael Brosnan. Computer programming support was provided by Ms. Karen Tilghman and administrative support was provided by Ms. Dolores Navarro. Captain Tegwin E. Cain analyzed the data and wrote the final report. This report has been reviewed and approved by Lt Col Roger W. Barnes, Chief, Airman Analysis Section, Occupational Analysis Flight, Air Force Occupational Measurement Squadron (AFOMS).

Copies of this report are distributed to Air Staff sections, major commands, and other interested training and management personnel. Additional copies are available upon request to AFOMS/OMYXI, 1550 5th Street East, Randolph Air Force Base, Texas 78150-4449, or by calling DSN 487-5543. For information on the Air Force occupational survey process or other on-going projects, visit our web site at <http://www.omsq.af.mil>.

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SUMMARY OF RESULTS

1. **Survey Coverage:** AFSC 4T0X1 was surveyed to provide current job and task data for use in updating career ladder documents and training programs. Survey results are based on responses from 879 Active Duty (AD) members from the career ladder, accounting for 70 percent of the total population surveyed.
2. **Specialty Jobs:** Three clusters and eight jobs were identified, accounting for 90 percent of the total sample. The remaining 10 percent, for one reason or another, did not group into one of these clusters or jobs. The Clinical Chemistry Cluster is the predominant cluster or job accounting for 51 percent of the survey population.
3. **Career Ladder Progression:** Skill-level progression for members of this AFSC is typical, with a move from technical work at the 3- and 5-skill levels to supervisory and management work beginning at the 7-skill level. Members spend less time on technical tasks as they progress through the skill levels.
4. **Training Analysis:** The current STS provides comprehensive coverage of the work performed by career ladder personnel. Some STS elements warrant review of proficiency coding based on survey data. Few tasks were not referenced to the STS.
5. **Job Satisfaction:** Job satisfaction among AFSC 4T0X1 personnel is about average for all TAFMS groups (first-enlistment, second-enlistment, and career groups) when compared to responses from like AFSCs surveyed in the past year. Job satisfaction has declined since the previous OSR was conducted in 1996. Reenlistment intentions for all TAFMS groups except the 97+ months TAFMS are lower when compared to like AFSCs and reenlistment intentions are all lower when compared to the previous survey.
6. **Implications:** Survey results indicate that the present classification structure, as described in the latest specialty description, accurately portrays the jobs performed by the members of this career ladder. Career ladder training documents appear, on the whole, to be well supported by survey data, but require review to ensure appropriate proficiency coding. Job satisfaction is fairly low for all TAFMS groups when compared to both the comparative sample of like AFSCs and the previous survey.

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**OCCUPATIONAL SURVEY REPORT (OSR)
MEDICAL LABORATORY
(AFSC 4T0X1)**

INTRODUCTION

This is an Occupational Survey Report (OSR) of the Air Force Specialty Code (AFSC), 4T0X1, Medical Laboratory career ladder conducted by the Air Force Occupational Measurement Squadron (AFOMS). The survey was conducted to obtain current job and task data.

Authority for conducting occupational surveys is contained in AFI 36-2623. Survey data will be used to identify current utilization patterns among career ladder personnel and evaluate career ladder documents and training programs. The last OSR published for the Medical Laboratory career ladder was January 1996.

Background

As described in the AFMAN 36-2108, *Airman Classification*, dated 30 April 1999, Medical Laboratory personnel test and analyze specimens of human origin and other substances by established scientific laboratory techniques to aid in the diagnosis, treatment, and prevention of disease or to support medical research. They also supervise medical laboratory activities, administer urine drug testing and perform environmental testing.

Personnel entering the AFSC 4T0X1 career ladder must attend the Medical Laboratory Apprentice (Phase I) course located at Sheppard AFB TX. They must also complete the Phase II course located at designated hospitals. Upon completion of this AFSC awarding courses, the graduate is awarded the 3-skill level.

Entry into this career ladder currently requires an Armed Forces Vocational Aptitude Test Battery (ASVAB) score of General - 58; a strength factor of "G" (Weight lift of 40 lbs.) is also required.

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SURVEY METHODOLOGY

Inventory Development

The data collection instrument for this occupational survey was USAF Job Inventory (JI) Occupational Survey Study Number (OSSN) 2378, dated October 1998. A tentative task list was prepared after reviewing pertinent career ladder publications and directives, pertinent tasks from the previous survey instrument, and data from the last OSR. The preliminary task list was refined and validated through personal interviews with 26 subject-matter experts (SMEs) at the following training location and operational installations:

<u>BASE</u>	<u>UNIT VISITED</u>
Sheppard AFB TX	382 TRS
Keesler AFB MS	81 MDTs
Lackland AFB TX	859 MDTs
Brooks AFB TX	Det 1, HSC

The resulting JI contains a comprehensive listing of 787 tasks grouped under 19 duty headings, and a background section requesting such information as grade, base, MAJCOM assigned, organizational level, job title, functional area, work schedule, job satisfaction, equipment used, type of medical facility, and status with the American Society of Clinical Pathology (ASCP).

Survey Administration

From November 1998 through February 1999, base training offices at operational units worldwide administered the inventory to eligible AFSC 4T0X1 personnel. Job incumbents were selected from a computer-generated mailing list obtained from personnel data tapes maintained by the Air Force Personnel Center, Randolph AFB TX. Each individual who completed the inventory first completed an identification and biographical information section and then checked each task performed in his or her current job. After checking all tasks performed, each member then rated each of these tasks on a 9-point scale, showing relative time spent on that task, as compared to all other tasks checked. The ratings ranged from 1 (very small amount time spent) through 5 (about average time spent) to 9 (very large amount time spent). To determine relative time spent for each task checked by a respondent, all of the incumbent's ratings are assumed to account for 100 percent of his or her time spent on the job and are summed. Each task rating is then divided by the total task ratings and multiplied by 100 to provide a relative percentage of time for each task. This procedure provides a basis for comparing tasks in terms of both percent members performing and average percent time spent.

Survey Sample

Personnel were selected to participate in this survey so as to ensure an accurate representation across major commands (MAJCOMs) and military paygrade groups. All eligible AFSC 4T0X1 personnel were mailed survey disks. Table 1 reflects the percentage of distribution, by Duty AFSC (DAFSC), of assigned AFSC 4T0X1 personnel as of November 1998. The 879 respondents in the final sample represent 64 percent of the total assigned personnel and 70 percent of the total personnel surveyed. Table 2 reflects the paygrade and MAJCOM distribution for this study.

TABLE 1

DAFSC DISTRIBUTION OF SURVEYED PERSONNEL

DAFSC	PERCENT OF ASSIGNED*	PERCENT OF SAMPLE
4T031	22	14
4T051	62	61
4T071	16	24
Other	0	1

TOTAL ASSIGNED* = 1379

TOTAL SURVEYED** = 1258

TOTAL IN SURVEY SAMPLE = 879

PERCENT OF ASSIGNED IN SAMPLE = 64%

PERCENT OF SURVEYED IN SAMPLE = 70%

* Assigned strength as of November 1998

** Excludes personnel in PCS, student, or hospital status, or less than 6 weeks on the job

TABLE 2

PAYGRADE/COMMAND DISTRIBUTION OF SURVEY SAMPLE

PAYGRADE	4T0X1	
	Percent of Assigned	Percent of Sample
E-1 - E-3	9	5
E-4	42	43
E-5	32	36
E-6	11	11
E-7	5	4
E-8	1	1
COMMAND	4T0X1	
	Percent of Assigned	Percent of Sample
ACC	17	15
AETC	28	32
AFMC	20	23
AFSPC	3	3
AMC	15	15
USAFE	6	4
PACAF	6	5
ELM	2	1
USAFA	2	1
OTHER	1	1

As can be seen from Tables 1 and 2, the DAFSC, Paygrade, and Command distributions of the survey sample are extremely close to the percent assigned. This indicates a high probability that the survey is an accurate representation of the respective populations for these career ladders.

Task Factor Administration

Job descriptions alone do not provide sufficient data for making decisions about career ladder documents or training programs. Task factor information is needed for a complete analysis of the career ladder. To obtain the needed task factor data, selected senior AFSC 4T0X1 personnel (generally E-6 or E-7 craftsmen) also completed a second disk for either training emphasis (TE) or task difficulty (TD). These disks were processed separately from the JIs. This information is used in a number of different analyses discussed in more detail within the report.

Training Emphasis (TE): TE is a rating of the amount of emphasis that should be placed on tasks in entry-level training. The 49 senior NCOs who completed a TE disk were asked to select tasks they felt require some sort of structured training for entry-level personnel and then indicate how much training emphasis these tasks should receive, from 1 (extremely low emphasis) to 9 (extremely high emphasis). Structured training is defined as training provided at resident training schools, field training detachments (FTD), mobile training teams (MTT), formal on-the-job-training (OJT), or any other organized training method. Interrater agreement for these 49 raters was acceptable. The average TE rating was 2.98 with a standard deviation of 1.73. Any task with a TE rating of 4.71 or above is considered to have a high TE.

Task Difficulty (TD): TD is an estimate of the amount of time needed to learn how to do each task satisfactorily. The 50 senior NCOs who completed TD disks were asked to rate the difficulty of each task using a 9-point scale (extremely low to extremely high). Interrater reliability was acceptable. Ratings were standardized so tasks have an average difficulty of 5.00 and a standard deviation of 1.00. Any task with a TD rating of 6.00 or above is considered to be difficult to learn.

When used in conjunction with the primary criterion of percent members performing, TE and TD ratings can provide insight into first-enlistment personnel training requirements. Such insights may suggest a need for lengthening or shortening portions of instruction supporting entry-level jobs.

SPECIALTY JOBS

The first step in the analysis process is to identify the structure of the career ladder in terms of the jobs performed by the respondents. The Comprehensive Occupational Data Analysis Program (CODAP) assists by creating an individual job description for each respondent based on the tasks performed and relative amount of time spent on these tasks. The CODAP automated job clustering program then compares all the individual job descriptions, locates the two descriptions with the most similar tasks and time spent ratings, and combines them to form a composite job description. In successive stages, CODAP either adds new members to this initial group, or forms new groups based on the similarity of tasks and time spent ratings.

The basic group used in the hierarchical clustering process is the Job. When two or more jobs have a substantial degree of similarity, in tasks performed and time spent on tasks, they are grouped together and identified as a Cluster. The structure of the career ladder is then defined in terms of jobs and clusters of jobs.

Overview of Specialty Jobs

Based on the analysis of tasks performed and the amount of time spent performing each task, three clusters and eight independent jobs were identified within the career ladder. Figure 1 illustrates the jobs and clusters performed by AFSC 4T0X1 personnel.

A listing of these jobs and clusters is provided below. The stage (STG) number shown beside each title references computer printed information, the letter "N" indicates the number of personnel in each group.

- I. Clinical Chemistry Cluster (STG060, N=450)
- II. Central Operations Cluster (STG046, N=72)
- III. Bacteriological Job (STG0118, N=55)
- IV. Blood Banking Job (STG0102, N=60)
- V. Immunology Cluster (STG044, N=26)
- VI. Research Job (STG072, N=8)
- VII. Environmental Chemistry Job (STG0100, N=9)
- VIII. Supply Job (STG0086, N=5)

- IX. Instructor Job (STG0075, N=24)
- X. Supervisor Job (STG073, N=73)
- XI. Systems Computer Job (STG069, N=10)

The respondents forming these jobs and clusters account for 90 percent of the survey sample. The remaining 10 percent, for one reason or another, did not group into one of these jobs or clusters. Examples of job titles for these personnel include NCOIC (QC/QA), PHA Coordinator, and CDC Writer.

AFSC 4T0X1 CAREER LADDER SPECIALTY JOBS (N = 879)

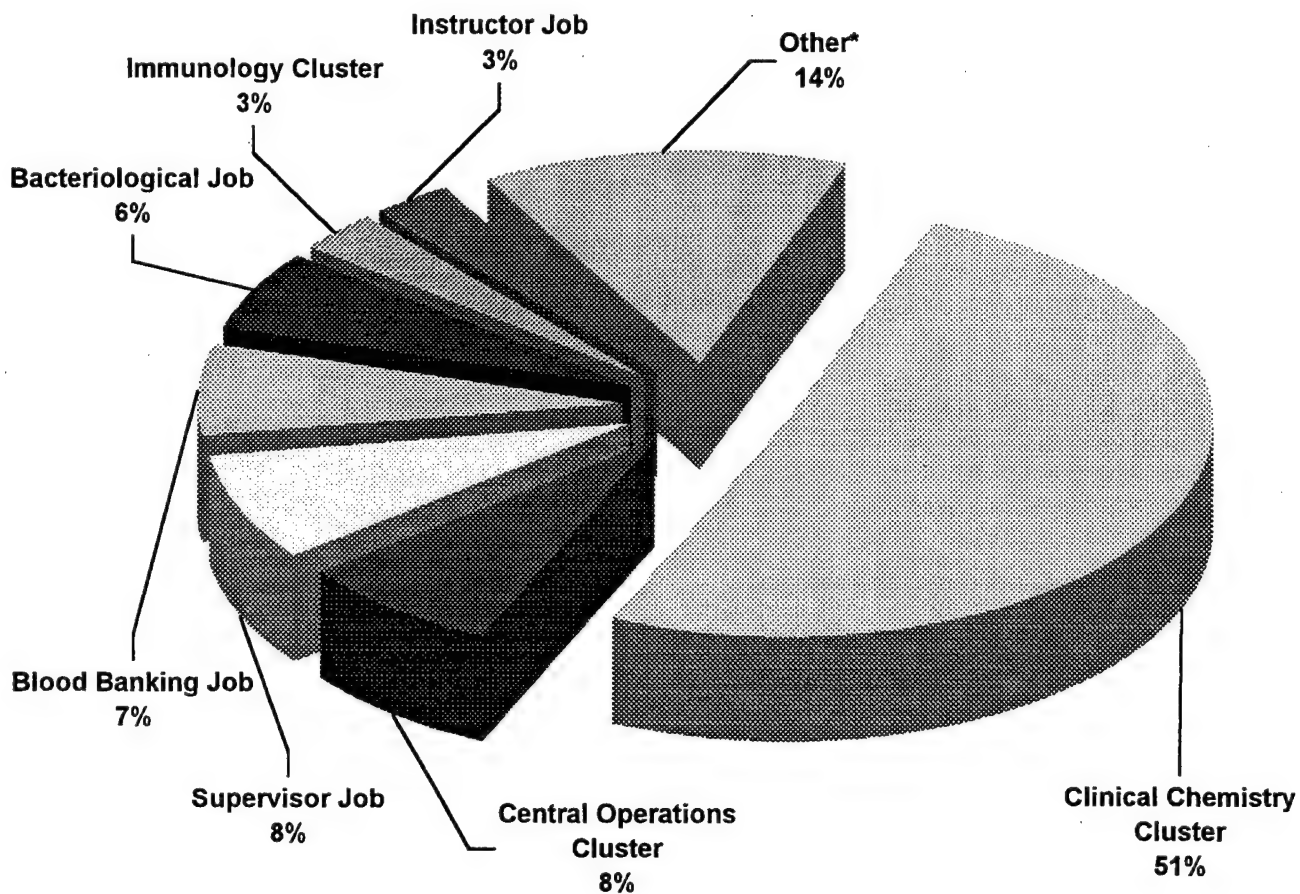


FIGURE 1

* - Other includes Research Job – 1%, Environmental Chemistry Job – 1%, Supply Job - 1%, Systems Computer Job – 1%, and Not Grouped – 10%.

Group Descriptions

The following paragraphs contain brief descriptions of the clusters and jobs identified through the career ladder structure analysis. Table 3 presents the relative time spent on duties by members of these specialty clusters and jobs. Selected background data for these clusters and jobs are provided in Table 4. Representative tasks for all the groups are contained in Appendix A.

I. CLINICAL CHEMISTRY CLUSTER (ST060). The 450 airmen forming this job (51 percent of the survey sample) perform an average of 156 tasks and are distinguished by the 23 percent of their time spent performing the Clinical Chemistry Procedure tasks of Duty E. This is the core job of the Medical Laboratory field. Typical of the clinical chemistry tasks performed include:

- Perform blood glucose tests
- Perform cholesterol tests
- Perform RBC morphologies
- Perform urinalyses
- Perform urinalysis confirmatory tests
- Perform erythrocyte sedimentation rate (ESR) tests
- Perform sodium tests
- Perform bilirubin tests
- Perform potassium tests
- Perform aspartate amino transferase (AST) tests
- Perform uric acid tests
- Centrifuge biological specimens

There were three distinct jobs identified within this cluster, all performing clinical chemistry and/or hematological procedures along with general laboratory activities. The jobs, though closely related, were different due to the number of tasks performed.

The first job is the Hematology/Urinalysis job. These airmen perform an average of 51 tasks with the majority of them dealing directly with hematology or urinalysis. Twenty-one percent of these airmen are supervising.

The second job is the Hematology job. These airmen deal mainly with tests on blood and blood products. They perform an average of 88 tasks and over half of these airmen are supervising.

The third job in this cluster is the Clinical Lab Technician. These airmen perform all different clinical tests. They only do a few blood or blood product tests. They perform an average of 168 tasks and 38 percent are supervising others.

The predominant paygrades of this cluster are E-1 to E-4. These airmen average 6 years in the career field and seven years Total Active Federal Military Service (TAFMS). Sixty-seven percent of this cluster report holding the 5-skill level and 14 percent the 7-skill level.

II. CENTRAL OPERATIONS CLUSTER (ST046). The 72 airmen performing within this cluster spend 51 percent of their time performing the General Laboratory Activities of Duty B and 25 percent of their time performing the Laboratory Administrative or Supply Activities of Duty A. They perform an average of 49 tasks. Distinctive tasks performed include:

- Collect venous blood samples from outpatients
- Instruct patients on collections or submissions of biological specimens
- Process specimens
- Collect infant PKU screen specimens
- Collect venous blood samples from inpatients
- Clean or disinfect laboratory work areas
- Review laboratory requests
- Record specimen collections
- Retrieve medical laboratory test results
- Prepare patients for glucose tolerance tests
- Collect capillary blood samples
- Instruct health care providers on laboratory procedures

The type and number of tasks performed identify the four jobs within this cluster. The first job is the Phlebotomist Job. These are the airmen that are responsible for drawing blood from patients. This is a very specialized job which is obvious from the average tasks numbering 14.

The second job is the Central Operations/Phlebotomy Technician. These airmen also draw blood but they are also responsible for more of the recordkeeping of samples. They perform an average of 23 tasks.

The third job is the Central Operations/Laboratory Technician Job. These airmen are the main thrust of the cluster. They perform an average of 88 tasks which range from recording specimen collections to collecting, logging in and analyzing the specimens. Sixty-three percent of these airmen are supervising.

The final job in this cluster is the Shipping/Receiving Job. These airmen perform an average of 32 tasks including process specimens, prepare biological specimens for shipment, and retrieve medical laboratory test results.

The predominant paygrades of this cluster are E-1 through E-5. These airmen average nearly four years in the career field and nearly 8 years TAFMS. Fifty-three percent report holding the 5-skill level and 22 percent the 7-skill level. Furthermore, 17 percent of these members are assigned to units overseas.

III. BACTERIOLOGICAL JOB (ST118). The 55 airmen forming this job (6 percent of the survey sample) are distinguished by the 45 percent of their time spent performing the Bacteriological procedure tasks of Duty K. They also spend about 17 percent of their time performing General Laboratory activities. They average 102 tasks performed. Representative tasks performed by these incumbents include:

- Perform gram stains
- Perform blood cultures
- Isolate aerobic bacteria
- Identify gram-negative bacteria to species level
- Identify gram-positive bacteria to species level
- Identify aerobic bacteria
- Perform primary cultures on aerobic specimens
- Perform subcultures on aerobic specimens
- Isolate anaerobic bacteria
- Perform groupings of streptococci
- Identify or record colony morphologies
- Perform primary cultures on anaerobic specimens
- Perform subcultures on anaerobic specimens

These airmen average over 5 years in the career field and 7 years TAFMS. The predominant paygrades are E-1 to E-4. Sixty percent hold the 5-skill level and 22 percent the 3-skill level.

IV. BLOOD BANKING JOB (ST102). The 60 airmen forming this job (7 percent of the survey sample) perform an average of 94 tasks and are distinguished by the 54 percent of their time spent performing the Blood Banking or Blood Donor Center tasks of Duty H (Table 3). They spend another 17 percent of their time performing the General Laboratory Activities of Duty B. Typical of the blood banking tasks performed include:

- Store blood or blood components
- Perform ABO groupings
- Record blood bank refrigerator temperatures
- Perform Rh Typing
- Ship or receive blood or blood components
- Prepare blood components for shipping
- Maintain blood inventories
- Label blood or blood components
- Issue blood or blood components
- Perform direct antiglobulin tests (DAT)
- Select packed cells
- Prepare packed RBC's

The predominant paygrades for this cluster are E-4 and E-5. These airmen average over 6 years in the career field and nearly 8 years TAFMS. Sixty-two percent hold the 5-skill level and 23 percent are at the 7-skill level.

V. IMMUNOLOGY CLUSTER (ST044). The 26 members of this job (only 3 percent of the survey sample) are distinguished by the Immunology Procedure tasks performed from Duty G. But the majority of their duties fall under the General Laboratory Activities of Duty B. The number of tasks performed differentiates the two jobs in this cluster. Representative tasks include:

- Perform syphilis antibody screen
- Perform rheumatoid factor antibody screens
- Perform syphilis antibody titers
- Perform rheumatoid factor antibody titers
- Perform antinuclear antibody (ANA) screens
- Perform ANA titers
- Perform anti-DNA screens
- Process specimens
- Prepare reagents, standards, or controls

Eighty-one percent of the members of this job hold the 5-skill level and 15 percent hold the 3-skill level. The predominant paygrade is E-4. The airmen in this job average 5 years in the career field and 6 years TAFMS.

There are two separate jobs in this cluster. The first job is the basic Immunology Job. These airmen perform many different immunological tests. They perform an average of 99 tasks. The second job is the Immunology/Special Chemistry Job. These airmen perform the more general immunology procedures along with the special chemistry tests. They only perform an average of 29 tasks.

VI. RESEARCH JOB (ST072). Comprising 1 percent of the survey sample, these 8 airmen report 35 percent of their time performing General Laboratory tasks of Duty B. They also spend nine percent of their time performing the Research tasks of Duty D. The members of this job perform an average of 80 tasks. Representatives of these tasks are:

- Centrifuge biological specimens
- Collect or analyze research data
- Develop technical protocols for research projects
- Calculate test statistics...SD's, CV's, etc.
- Inspect laboratory glassware
- Collect or preserve cultures from laboratory animals
- Perform primary cell cultures on tissues

- Perform tissue culture cell counts
- Perform gas chromatography analyses
- Validate test results

Seventy-five percent of these members hold a 5-skill level and 25 percent the 7-skill level. There are no first enlistment personnel in this job. The average time in the career ladder for these airmen is almost eight years, with 8 years TAFMS. The predominant paygrade of this job is E-5.

VII. ENVIRONMENTAL CHEMISTRY JOB (ST100). These nine airmen spend about 40 percent of their time on Performing Research, Environmental, or Occupational Analytical Procedures of Duty D. They also spend 34 percent of their time Performing General Laboratory Activities of Duty B. They perform an average of 29 tasks. This small number of tasks indicates a very specialized job. Representative tasks performed by members include:

- Perform environmental analysis on water samples
- Perform environmental analyses on waste samples
- Perform environmental analyses on soil samples
- Prepare water samples for environmental analyses
- Prepare reagents, standards, or controls
- Prepare waste samples for environmental analyses
- Prepare soil samples for environmental analyses
- Clean laboratory glassware
- Remove or dispose of hazardous waste
- Store hazardous chemicals, such as acids or carcinogens

Eighty-nine percent of these members hold the 5-skill level and 11 percent are at the 7-skill level. The average time in the career field for these airmen is 9 years, with the average TAFMS being almost 10 years. The predominant paygrade is E-5.

XIII. SUPPLY JOB (ST086). The five airmen performing within this job spend 65 percent of their time performing the Laboratory Administration or Supply Activities of Duty A and 21 percent of their time performing the General Laboratory Activities of Duty B. They perform an average of 39 tasks. Distinctive tasks performed include:

- Maintaining supply stock levels
- Inventory equipment or supplies
- Track equipment or supply purchases
- Prepare requisitions for local purchase of equipment or supplies
- Pick up or deliver equipment or supplies
- Brief supervisors concerning purchases of equipment or supplies
- Issue or log turn-ins of equipment or supplies

- Annotate shopping guide
- Turn in equipment or supplies
- Perform receiving inspections of incoming equipment or supplies

The predominant paygrades of this cluster are E-1 through E-5. These airmen average nearly 9 years in the career field and 10 years TAFMS. Eighty percent report holding the 5-skill level and 20 percent the 7-skill level.

IX. INSTRUCTOR JOB (ST075). The 24 airmen forming this job perform an average of 76 tasks and are distinguished by the 39 percent of their time spent performing the Training Activity tasks of Duty S. Typical of the instructor tasks performed include:

- Evaluate progress of trainees
- Maintain training records or files
- Counsel trainees on training progress
- Develop training programs, plans, or procedures
- Conduct formal course classroom training
- Develop or procure training materials or aids
- Evaluate effectiveness of training programs, plans, or procedures
- Personalize lesson plans
- Determine training requirements
- Establish or maintain study reference files

The predominant paygrade of this job is E-5. These airmen average 11 years in the career field and over 12 years TAFMS. Fifty-eight percent of this cluster report holding the 7-skill level and 42 percent the 5-skill level.

X. SUPERVISOR JOB (ST073). The 79 airmen forming this job (9 percent of the survey sample) are distinguished by the 40 percent of their time spent performing the Management and Supervisory activity tasks of Duty R. They also spend about 33 percent of their time performing Laboratory Administration or Supply activities. They average 91 tasks performed. Representative tasks performed by these incumbents include:

- Counsel subordinates concerning personal matters
- Write recommendations for awards or decorations
- Conduct supervisory performance feedback sessions
- Evaluate personnel for compliance with performance standards
- Inspect personnel for compliance with military standards
- Write or indorse military performance reports
- Conduct supervisory orientations for newly assigned personnel
- Evaluate personnel for promotion, demotion, reclassification or special award
- Collect or analyze workload data
- Determine or establish work assignments or priorities

These airmen average 14 years in the career field and 16 years TAFMS. The predominant paygrade is E-6. Seventy-eight percent hold the 7-skill level and 18 percent the 5-skill level (Table 4).

XI. SYSTEMS COMPUTER JOB (ST069). The 10 airmen forming this job (1 percent of the survey sample) perform an average of 43 tasks and are distinguished by the 48 percent of their time spent performing the Laboratory Computer Activity tasks of Duty C. They spend another 19 percent of their time performing the Laboratory Administrative or Supply Activities of Duty A. Typical of the systems computer tasks performed include:

- Troubleshoot data management or information systems
- Perform data base inquiries
- Modify existing software to meet local needs
- Distribute or deliver computer-generated products
- Perform systems analyses on laboratory information systems
- Test new computer hardware or software programs
- Coordinate designs or models of computer programs with programmer
- Configure computers to interface with laboratory equipment
- Enter or update computerized data—patients, QC, supply
- Initiate or update computer-based instructions

The predominant paygrade for this cluster is E-5. These airmen average over 12 years in the career field and nearly 14 years TAFMS. Sixty percent hold the 5-skill level and 40 percent are at the 7-skill level.

Comparison to Previous Study

Table 5 lists the clusters and jobs identified in this report and compare them to the clusters and jobs of the 1996 report. Nine of the 11 jobs identified in the previous report matched similar jobs in this report. The Supply Job of the current survey was included under the Superintendent Cluster of the previous survey. The previous survey also did not separate the Supervisors into their own job. The Junior Lab job of the previous survey was not identified in the present survey.

The only major difference is the Histopathology Cluster of the previous survey now has it's own OSR and is no longer grouped under the Medical Laboratory Career Field.

TABLE 3

AVERAGE PERCENT TIME SPENT ON DUTIES BY SPECIALTY JOBS

DUTIES	CENTRAL OPS CLUSTER (STGO46)						CLINICAL CHEM CLUSTER (STG060)		BAC-T JOB (STG118)		BLOOD BANKING JOB (STG102)		IMMUNO-LOGY CLUSTER (STG044)		RE-SEARCH JOB (STG072)	
	25	51	1	*	1	*	10	21	1	*	8	12	13	43	1	*
A. PERFORMING LABORATORY ADMINISTRATIVE OR SUPPLY ACTIVITIES																
B. PERFORMING GENERAL LABORATORY ACTIVITIES																
C. PERFORMING LABORATORY COMPUTER ACTIVITIES																
D. PERFORMING RESEARCH, ENVIRONMENTAL, OR OCCUPATIONAL ANALYTICAL PROCEDURES																
E. PERFORMING CLINICAL CHEMISTRY PROCEDURES																
F. PERFORMING SPECIAL CHEMISTRY PROCEDURES																
G. PERFORMING IMMUNOLOGY PROCEDURES																
H. PERFORMING BLOOD BANKING OR BLOOD DONOR CENTER PROCEDURES																
I. PERFORMING HEMATOLOGICAL PROCEDURES																
J. PERFORMING COAGULATION PROCEDURES																
K. PERFORMING BACTERIOLOGICAL PROCEDURES																
L. PERFORMING MYCOLOGY OR VIROLOGY PROCEDURES																
M. PERFORMING PARATOLOGICAL PROCEDURES																
N. PERFORMING URINE TESTING PROCEDURES																
O. PERFORMING DRUG TESTING PROCEDURES																
P. PERFORMING MOLECULAR DIAGNOSTICS PROCEDURES																
Q. PERFORMING MEDICAL READINESS PROCEDURES																
R. PERFORMING MANAGEMENT AND SUPERVISORY ACTIVITIES																
S. PERFORMING TRAINING ACTIVITIES																

* INDICATES LESS THAN 1%

TABLE 3 (CONTINUED)

AVERAGE PERCENT TIME SPENT ON DUTIES BY SPECIALTY JOBS

DUTIES		ENVIRON	SUPPLY	INSTRUCTOR	SUPERVISOR	SYSTEMS
		CHEMISTRY JOB (STG100)	JOB (STG086)	JOB (STG075)	JOB (STG073)	COMPUTER JOB (STG069)
A.	PERFORMING LABORATORY ADMINISTRATIVE OR SUPPLY ACTIVITIES	14	65	10	33	19
B.	PERFORMING GENERAL LABORATORY ACTIVITIES	34	21	8	8	9
C.	PERFORMING LABORATORY COMPUTER ACTIVITIES	3	1	4	4	48
D.	PERFORMING RESEARCH, ENVIRONMENTAL, OR OCCUPATIONAL ANALYTICAL PROCEDURES	40	4	0	1	1
E.	PERFORMING CLINICAL CHEMISTRY PROCEDURES	3	0	3	*	0
F.	PERFORMING SPECIAL CHEMISTRY PROCEDURES	*	0	*	*	*
G.	PERFORMING IMMUNOLOGY PROCEDURES	0	*	*	*	0
H.	PERFORMING BLOOD BANKING OR BLOOD DONAR CENTER PROCEDURES	0	*	3	*	*
I.	PERFORMING HEMATOLOGICAL PROCEDURES	0	*	2	*	*
J.	PERFORMING COAGULATION PROCEDURES	0	*	*	*	*
K.	PERFORMING BACTERIOLOGICAL PROCEDURES	0	1	3	0	0
L.	PERFORMING MYCOLOGY OR VIROLOGY PROCEDURES	0	*	*	0	0
M.	PERFORMING PARATOLOGICAL PROCEDURES	0	0	2	*	0
N.	PERFORMING URINE TESTING PROCEDURES	0	*	2	*	0
O.	PERFORMING DRUG TESTING PROCEDURES	0	0	0	*	0
P.	PERFORMING MOLECULAR DIAGNOSTICS PROCEDURES	*	1	0	*	0
Q.	PERFORMING MEDICAL READINESS PROCEDURES	1	0	*	4	2
R.	PERFORMING MANAGEMENT AND SUPERVISORY ACTIVITIES	3	4	22	40	16
S.	PERFORMING TRAINING ACTIVITIES	1	*	39	7	4

* INDICATES LESS THAN 1%

TABLE 4

SELECTED BACKGROUND DATA FOR SPECIALTY JOBS

	CLINICAL CHEMISTRY CLUSTER	CENTRAL OPERATIONS CLUSTER	BACTERIO- LOGICAL JOB	BLOOD BANKING JOB	IMMUNO- LOGY CLUSTER	RESEARCH JOB
NUMBER IN GROUP	450	72	55	60	26	8
PERCENT OF SAMPLE	51%	8%	6%	7%	3%	1%
<u>DAFSC DISTRIBUTION</u>						
4T031	18%	24%	22%	15%	15%	0%
4T051	67%	53%	60%	62%	81%	75%
4T071	14%	22%	18%	23%	4%	25%
Other	1%	1%	0%	0%	0%	0%
<u>PAYGRADE DISTRIBUTION</u>						
E-1 TO E-4	59%	50%	58%	50%	73%	25%
E-5	33%	42%	38%	38%	27%	75%
E-6	7%	7%	4%	10%	0%	0%
E-7	1%	1%	0%	2%	0%	0%
AVERAGE MONTHS IN CAREER FIELD	77	83	70	77	63	93
AVERAGE MONTHS TAFMS	87	93	86	95	71	95
PERCENT IN FIRST ENLISTMENT	23%	25%	27%	25%	23%	0%
PERCENT SUPERVISING	39%	44%	36%	48%	23%	37%
AVERAGE NUMBER OF TASKS PERFORMED	156	49	102	94	60	78

TABLE 4 (CONTINUED)

SELECTED BACKGROUND DATA FOR SPECIALTY JOBS

	ENVIRONMENT		SUPPLY	INSTRUCTOR	SUPERVISOR	SYSTEMS COMPUTER
	JOB	CHEMISTRY	JOB	JOB	JOB	JOB
NUMBER IN GROUP	9		5	24	73	10
PERCENT OF SAMPLE	1%		*	3%	8%	1%
<u>DAFSC DISTRIBUTION</u>						
4T031	0%		0%	0%	0%	0%
4T051	89%		80%	42%	18%	60%
4T071	11%		20%	58%	78%	40%
Other	0%		0%	0%	4%	0%
<u>PAYGRADE DISTRIBUTION</u>						
E-1 TO E-4	33%		40%	0%	3%	20%
E-5	67%		40%	71%	16%	50%
E-6	0%		0%	21%	46%	10%
E-7	0%		20%	8%	29%	20%
E-8	0%		0%	0%	6%	0%
AVERAGE MONTHS IN CAREER FIELD	109		110	134	169	151
AVERAGE MONTHS TAFMS	115		120	150	193	166
PERCENT IN FIRST ENLISTMENT	11%		0%	0%	0%	0%
PERCENT SUPERVISING	22%		20%	50%	94%	50%
AVERAGE NUMBER OF TASKS PERFORMED	29		39	76	91	43

TABLE 5

SPECIALTY JOB COMPARISON BETWEEN CURRENT AND 1996 SURVEYS

CURRENT SURVEY (N=879)	1996 SURVEY (N=1,173)
I. Clinical Chemistry Cluster	I. General Clinical Chemistry Cluster
II. Central Operations Cluster	II. Superintendent Cluster
III. Bacteriological Job	III. Bacteriology Job
IV. Blood Banking Job	IV. Blood Banking Job
V. Immunology Cluster	V. Immunology Job
VI. Research Job	VI. Research Job
VII. Environmental Chemistry Job	VII. Environmental Chemistry Job
VIII. Supply Job	<i>Included under Superintendent Cluster</i>
IX. Instructor Job	VIII. Instructor Job
X. Supervisor Job	<i>No such job identified</i>
XI. Systems Computer Job	IX. Systems Computer Job
<i>No such job identified</i>	X. Junior Lab Job
<i>No such job identified</i>	XI. Histopathology Cluster

ANALYSIS OF DAFSC GROUPS

An analysis of DAFSC groups, in conjunction with the analysis of the career ladder structure, is an important part of each occupational survey. The DAFSC analysis identifies differences in tasks performed at the various skill levels. This information may then be used to evaluate how well career ladder documents, such as the AFMAN 36-2108 *Airman Classification*, Specialty Description and the Career Field Education and Training Plan (CFETP), reflect what career ladder personnel are actually doing in the field.

The distribution of skill-level groups across the career ladder jobs and clusters are displayed in Tables 6, while Table 7 offers another perspective by displaying the relative percent time spent on each duty across skill-level groups. A somewhat typical pattern of progression is noted within the AFSC 4T0X1 career ladder. Personnel at the 3- and 5-skill levels work in the technical jobs of the career ladder and spend most of their time on technical tasks. As incumbents move up to the 7-skill level, they begin to perform supervisory tasks, but still spend time performing the technical tasks of the career ladder.

Skill-Level Descriptions

DAFSC 4T031. Representing 14 percent of the survey sample, these 126 AD airmen perform an average of 109 tasks. Sixty-four percent of this group works in the Clinical Chemistry Cluster, with 13 percent performing in the Central Operations Cluster.

Table 7 reflects the percent time spent on duties by DAFSC groups. At the 3-skill level, their time is concentrated on the technical tasks of duties A, B, and E. Representative tasks performed by these members are listed in Table 8.

DAFSC 4T051. The 532 members of this group account for 60 percent of the survey sample. Fifty-seven percent work in the Clinical Chemistry Cluster. They perform an average of 119 tasks.

Table 7 shows the relative time spent on duties. At the 5-skill level, their time is again spent mainly on the technical tasks of A, B, and E. Table 9 lists the representative tasks performed by the members. Table 10 reflects those tasks which best differentiate the 3-skill levels from the 5-skill levels. This table shows the 3-skill levels perform some technical tasks more than 5-skill levels, while the 5-skill levels perform supervisory tasks not performed at the 3-skill level.

DAFSC 4T071. These 212 members perform an average of 110 tasks and represent 24 percent of the survey sample. Thirty percent of members are in the Clinical Chemistry Cluster and 29 percent are in the Supervisor Job.

Table 7 reflects the percent time spent on duties by DAFSC members. These members spend 24 percent of their time performing the tasks in Duty R, Management and Supervisory Activities.

They also spend 23 percent of their time performing the tasks of Duty A, Laboratory Administrative or Supply Activities.

Representative tasks performed by 7-skill level members are reflected in Table 11. Table 12 reflects the tasks which best differentiate between 5- and 7-skill levels. The 5-skill levels are more technically oriented than the 7-skill levels that perform training and supervisory tasks at a much higher percentage.

Summary

Progression in the Medical Laboratory career ladder follows a regular pattern of highly technical job focus at the lower skill levels, with a broadening into supervision and management at the 7-skill level. An emphasis is clearly seen of personnel performing primarily the core job of Clinical Chemistry at the 3- and 5-skill levels, with some broadening into supervisory functions at the 7-skill level. While craftsmen at the 7-skill level begin to shift to Supervisory jobs, a good part of their time is still spent performing Clinical Chemistry functions.

TABLE 6

DISTRIBUTION OF SKILL LEVEL DAFSC GROUP MEMBERS ACROSS SPECIALTY JOBS
(PERCENT RESPONDING)

<u>SPECIALTY JOBS</u>	4T031 (N=126)	4T051 (N=532)	4T071 (N=212)
I. CLINICAL CHEMISTRY CLUSTER	64	57	30
II. CENTRAL OPERATIONS CLUSTER	13	7	7
III. BACTERIOLOGICAL JOB	10	6	5
IV. BLOOD BANKING JOB	7	7	6
V. IMMUNOLOGY CLUSTER	3	4	1
VI. RESEARCH JOB	0	1	1
VII. ENVIRONMENTAL CHEMISTRY JOB	0	1	1
VIII. SUPPLY JOB	0	1	1
IX. INSTRUCTOR JOB	0	2	6
X. SUPERVISOR JOB	0	3	29
XI. SYSTEMS COMPUTER JOB	0	1	2
OTHER	3	10	11

TABLE 7

RELATIVE PERCENT TIME SPENT ON DUTIES BY SKILL LEVEL DAFSC GROUPS

DUTIES	4T031	4T051	4T071
	(N=126)	(N=532)	(N=212)
A PERFORMING LABORATORY ADMINISTRATIVE OR SUPPLY ACTIVITIES	11	14	23
B PERFORMING GENERAL LABORATORY ACTIVITIES	28	24	15
C PERFORMING LABORATORY COMPUTER ACTIVITIES	*	2	3
D PERFORMING RESEARCH, ENVIRONMENTAL, OR OCCUPATIONAL ANALYTICAL PROCEDURES	*	2	1
E PERFORMING CLINICAL CHEMISTRY PROCEDURES	16	15	5
F PERFORMING SPECIAL CHEMISTRY PROCEDURES	3	2	*
G PERFORMING IMMUNOLOGY PROCEDURES	3	2	*
H PERFORMING BLOOD BANKING OR BLOOD DONAR CENTER PROCEDURES	8	7	5
I PERFORMING HEMATOLOGICAL PROCEDURES	7	7	3
J PERFORMING COAGULATION PROCEDURES	2	1	1
K PERFORMING BACTERIOLOGICAL PROCEDURES	11	7	4
L PERFORMING MYCOLOGY OR VIROLOGY PROCEDURES	1	1	*
M PERFORMING PARATOLOGICAL PROCEDURES	2	2	1
N PERFORMING URINE TESTING PROCEDURES	5	4	2
O PERFORMING DRUG TESTING PROCEDURES	*	1	*
P PERFORMING MOLECULAR DIAGNOSTICS PROCEDURES	*	*	*
Q PERFORMING MEDICAL READINESS PROCEDURES	1	1	3
R PERFORMING MANAGEMENT AND SUPERVISORY ACTIVITIES	*	5	24
S PERFORMING TRAINING ACTIVITIES	1	2	9

* Less than 1 percent

TABLE 8
REPRESENTATIVE TASKS PERFORMED BY 4T031 PERSONNEL

TASKS		PERCENT MEMBERS PERFORMING (N=126)
B0106	Process Specimens	89
B0075	Clean or disinfect laboratory work areas	88
B0081	Collect venous blood samples from outpatients	87
B0080	Collect venous blood samples from inpatients	74
B0079	Collect infant phenylketonuria (PKU) screen specimens	74
B0110	Retrieve medical laboratory test results	71
B0094	Perform maintenance on laboratory equipment	69
B0117	Validate test results	67
B0105	Prepare reagents, standards, or controls	64
B0103	Prepare patients for glucose tolerance tests	64
B0086	Instruct patients on collections or submissions of biological specimens	62
B0114	Store biological specimens	62
B0102	Prepare patients for blood culture collections	62
B0113	Run patient controls	60
N0639	Perform urinalyses	60
B0073	Centrifuge biological specimens	60
N0640	Perform urinalyses confirmatory tests	59
I0476	Perform erythrocyte sedimentation rate (ESR) tests	59
N0641	Perform urine-reducing substances tests, such as clinitests	59
A0056	Record specimen collections	58
B0116	Store reagents, standards, or controls, other than hazardous chemicals	58
B0109	Remove or dispose of Privacy Act material	57
B0107	Remove or dispose of hazardous waste	57
A0057	Research missing patient information from laboratory request slips	57
E0209	Perform blood glucose tests	57
B0078	Collect chain-of-custody specimens	57
A0045	Notify medical professionals of test results or testing delays	56
A0055	Record patient test results on laboratory slips	56
B0111	Review laboratory requests	56
B0108	Remove or dispose of infectious waste	56
E0217	Perform cholesterol tests	56
E0207	Perform bilirubin tests	56
E0263	Perform uric acid tests	56
B0112	Run commercial assayed or unassayed controls	55
E0219	Perform creatinine kinase (CK) tests	55

* Average Number of Tasks Performed - 109

TABLE 9

REPRESENTATIVE TASKS PERFORMED BY 4T051 PERSONNEL

TASKS		PERCENT MEMBERS PERFORMING (N=532)
B0075	Clean or disinfect laboratory work areas	82
B0106	Process specimens	81
B0081	Clean or disinfect laboratory work areas	81
B0110	Retrieve medical laboratory test results	72
B0094	Perform maintenance on laboratory equipment	71
B0117	Validate test results	68
B0105	Prepare reagents, standards, or controls	68
B0114	Store biological specimens	67
B0116	Store reagents, standards, or controls, other than hazardous chemicals	66
B0077	Collect capillary blood samples	64
B0111	Review laboratory requests	63
B0112	Run commercial assayed or unassayed controls	62
B0086	Instruct patients on collections or submissions of biological specimens	61
B0080	Collect venous blood samples from inpatients	60
B0107	Remove or dispose of hazardous waste	60
B0073	Centrifuge biological specimens	59
B0108	Remove or dispose of infectious waste	58
B0079	Collect infant phenylketonuria (PKU) screen specimens	58
A0045	Notify medical professionals of test results or testing delays	57
B0078	Collect chain-of-custody specimens	57
B0109	Remove or dispose of Privacy Act material	57
B0085	Instruct health care providers on laboratory procedures	56
B0102	Prepare patients for blood culture collections	56
A0019	Identify and report equipment or supply problems	55
A0057	Research missing patient information from laboratory request slips	55
B0113	Run patient controls	55
N0639	Perform urinalyses	54
E0209	Perform blood glucose tests	53
N0640	Perform urinalyses confirmatory tests	51
B0097	Perform proficiency survey procedures	52
E0217	Perform cholesterol tests	51
E0207	Perform bilirubin tests	51

* Average Number of Tasks Performed – 119

TABLE 10

TASKS WHICH BEST DIFFERENTIATE BETWEEN
AD DAFSCs 4T031 AND 4T051 PERSONNEL
(PERCENT MEMBERS PERFORMING)

TASKS	AD DAFSC 4T031 (N=126)	AD DAFSC 4T051 (N=532)	DIFF
B0079 Collect infant phenylketonuria (PKU) screen specimens	74	58	16
K0557 Perform optochin taxo-P tests	40	26	14
B0080 Collect venous blood samples from inpatients	74	60	14
B0103 Prepare patients for glucose tolerance tests	63	50	13
K0528 Isolate aerobic bacteria	47	34	13
K0523 Identify aerobic bacteria	46	33	13
F0266 Collect deoxyribonucleic acid (DNA) samples	43	30	13
R0779 Write or indorse military performance reports	0	26	-26
B0091 Observe specimen collections during urine drug testings	14	38	-24
R0742 Conduct supervisory performance feedback sessions	0	24	-24
S0786 Conduct on-the-job training (OJT)	14	38	-24
S0787 Counsel trainees on training progress	5	28	-23
A0006 Compile data for records, reports, logs, or trend analyses	20	43	-23
R0762 Evaluate personnel for compliance with performance standards	3	26	-23
R0769 Interpret policies, directives, or procedures for subordinates	1	23	-22
R0780 Write recommendations for awards or decorations	0	22	-22
R0763 Evaluate personnel for promotion, demotion, reclassification, or special awards	0	21	-21
R0758 Establish performance standards for subordinates	1	21	-20
R0747 Determine or establish work assignments or priorities	1	21	-20
B0093 Perform correlation or parallel studies	22	42	-20
A0054 Prepare requisitions for local purchase of equipment or supplies	4	23	-19

TABLE 11

REPRESENTATIVE TASKS PERFORMED BY 4T071 PERSONNEL

TASKS	PERCENT MEMBERS PERFORMING (N=212)
R0745 Counsel Subordinates concerning personal matters	80
R0742 Conduct supervisory performance feedback sessions	75
R0780 Write recommendations for awards or decorations	75
R0762 Evaluate personnel for compliance with performance standards	72
R0768 Inspect personnel for compliance with military standards	72
A0019 Identify and report equipment or supply problems	71
R0779 Write or indorse military performance reports	70
A0030 Inventory equipment or supplies	68
A0006 Compile data for records, reports, logs, or trend analyses	68
R0763 Evaluate personnel for promotion, demotion, reclassification, or special awards	67
A0007 Complete accident or incident reports	66
S0787 Counsel trainees on training progress	65
R0769 Interpret policies, directives, or procedures for subordinates	65
S0786 Conduct on-the-job training (OJT)	64
A0005 Collect or analyze workload data	63
R0758 Establish performance standards for subordinates	63
B0106 Process specimens	61
R0744 Conduct supervisory orientations for newly assigned personnel	61
R0747 Determine or establish work assignments or priorities	61
B0075 Clean or disinfect laboratory work areas	58
R0767 Initiate actions required due to substandard performance of personnel	58
B0085 Instruct health care providers on laboratory procedure	58
S0783 Brief personnel concerning training programs or matters	58
A0041 Maintain supply stock levels	58
B0110 Retrieve medical laboratory test results	58
R0753 Develop or establish work schedules	56
R0740 Conduct self-inspections or self-assessments	56
A0045 Notify medical professionals of test results or testing delays	56
A0008 Complete quality assurance inspection checklist procedures	56
B0081 Collect venous blood samples from outpatients	55
R0757 Establish organizational policies, such as operating instructions (OIs) or standard operating procedures (SOPs)	54
B0117 Validate test results	54
A0004 Brief supervisors concerning purchases of equipment or supplies	54
R0737 Assign personnel to work areas or duty positions	54
A0011 Coordinate laboratory test issues with requestors	54

* Average Number of Tasks Performed - 110

TABLE 12

TASKS WHICH BEST DIFFERENTIATE BETWEEN
AD DAFSCs 4T051 AND 4T071 PERSONNEL
(PERCENT MEMBERS PERFORMING)

TASKS	AD DAFSC 4T051 (N=532)	AD DAFSC 4T071 (N=212)	DIFF
B0080 Collect venous blood samples from inpatients	60	32	28
E0219 Perform creatinine kinase (CK) tests	47	19	28
E0264 Perform urine glucose tests	47	19	28
B0079 Collect infant phenylketonuria (PKU) screen specimens	58	32	26
E0243 Perform magnesium tests	43	17	26
E0244 Perform medical blood alcohol tests	40	15	25
B0105 Prepare reagents, standards, or controls	68	42	26
E0209 Perform blood glucose tests	52	27	25
B0102 Prepare patients for blood culture collections	56	31	25
E0221 Perform CSF glucose tests	39	14	25
R0780 Write recommendations for awards or decorations	22	75	-53
R0745 Counsel subordinates concerning personal matters	28	80	-52
R0742 Conduct supervisory performance feedback sessions	24	74	-50
R0763 Evaluate personnel for promotion, demotion, reclassification, or special awards	21	68	-47
R0762 Evaluate personnel for compliance with performance standards	26	72	-46
R0768 Inspect personnel for compliance with military standards	27	72	-45
R0779 Write or indorse military performance reports	25	70	-45
R0744 Conduct supervisory orientations for newly assigned personnel	17	61	-44
R0769 Interpret policies, directives, or procedures for subordinates	23	65	-42
R0758 Establish performance standards for subordinates	21	63	-42

TRAINING ANALYSIS

Occupational survey data are one of many sources of information that can be used to assist in the development of a training program relevant to the needs of personnel in their first enlistment. Factors which may be used in evaluating training include the overall description of the work being performed by first-enlistment personnel and their overall distribution across career ladder jobs, percentages of first-enlistment (1-48 months TAFMS) members performing specific tasks, as well as TE and TD ratings (previously explained in the **SURVEY METHODOLOGY** section).

First-Enlistment Personnel

In this study, there are 166 members in their first-enlistment (1-48 months TAFMS), representing 19 percent of the total survey sample. Figure 2 reflects the distribution of first-enlistment personnel within the career ladder. Sixty-three percent of these airmen are performing Clinical Chemistry duties compared to 10 percent performing Central Operations duties. Table 13 displays the relative percent of time spent on duties by first-enlistment personnel. Reviewing the table, first-enlistment personnel spend 27 percent of their time performing the technical tasks of the General Laboratory and Clinical Chemistry, Duties B and E respectfully.

Table 14 lists representative tasks performed by first-enlistment personnel. Most involve the General Laboratory tasks of Duty B. Table 15 reflects the equipment most commonly used by active duty first-enlistment respondents.

**DISTRIBUTION OF 4T0X1 FIRST-ENLISTMENT PERSONNEL
ACROSS SPECIALTY JOBS
(N = 166)**

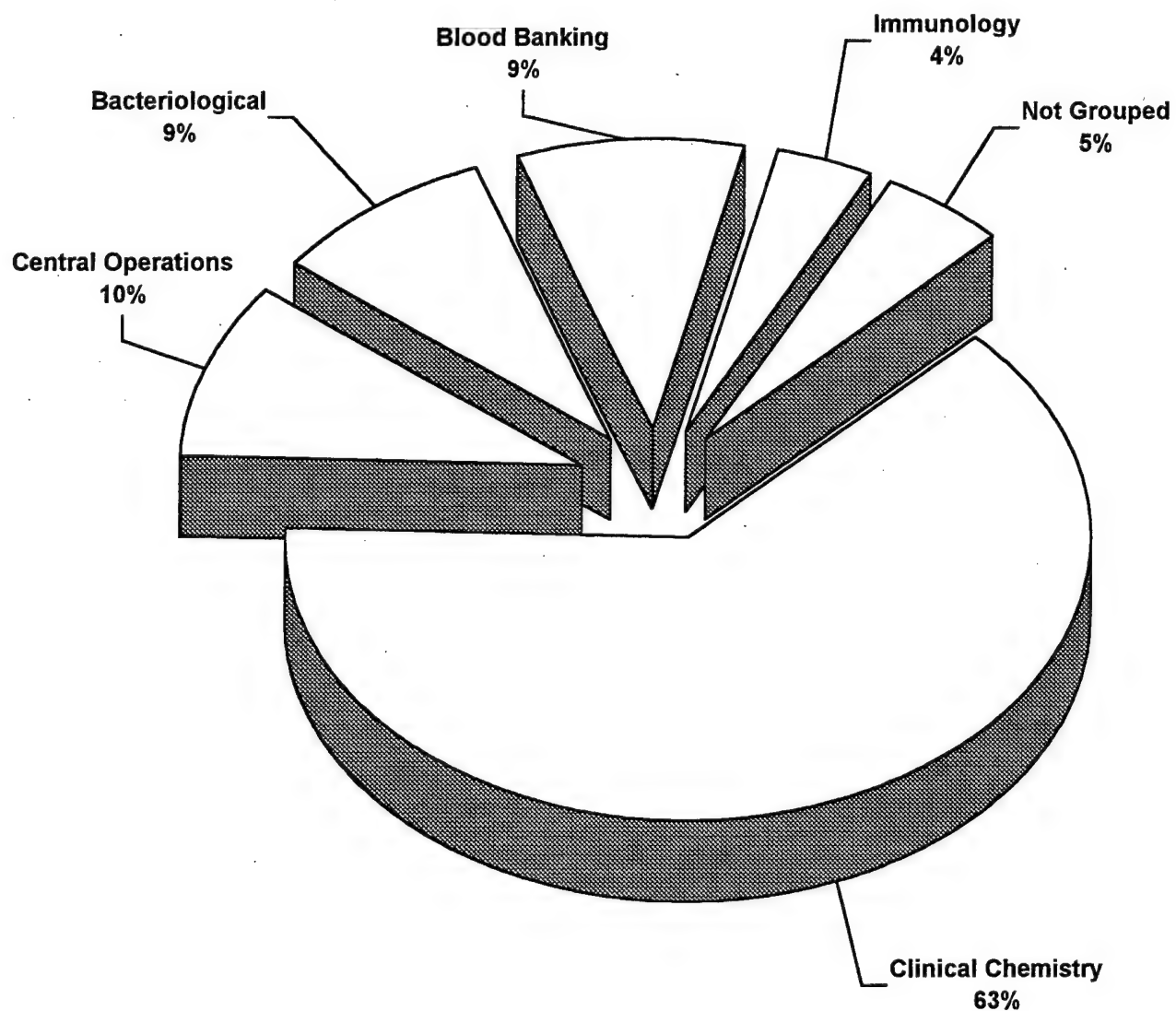


FIGURE 2

TABLE 13
RELATIVE PERCENT TIME SPENT ON DUTIES BY
AD FIRST-ENLISTMENT PERSONNEL
(N=166)

DUTIES	PERCENT TIME SPENT
A PERFORMING LABORATORY ADMINISTRATIVE OR SUPPLY ACTIVITIES	10
B PERFORMING GENERAL LABORATORY ACTIVITIES	27
C PERFORMING LABORATORY COMPUTER ACTIVITIES	1
D PERFORMING RESEARCH, ENVIRONMENTAL, OR OCCUPATIONAL ANALYTICAL PROCEDURES	1
E PERFORMING CLINICAL CHEMISTRY PROCEDURES	16
F PERFORMING SPECIAL CHEMISTRY PROCEDURES	3
G PERFORMING IMMUNOLOGY PROCEDURES	3
H PERFORMING BLOOD BANKING OR BLOOD DONAR CENTER PROCEDURES	9
I PERFORMING HEMATOLOGICAL PROCEDURES	7
J PERFORMING COAGULATION PROCEDURES	2
K PERFORMING BACTERIOLOGICAL PROCEDURES	10
L PERFORMING MYCOLOGY OR VIROLOGY PROCEDURES	1
M PERFORMING PARASITOLOGICAL PROCEDURES	2
N PERFORMING URINE TESTING PROCEDURES	5
O PERFORMING DRUG TESTING PROCEDURES	1
P PERFORMING MOLECULAR DIAGNOSTICS PROCEDURES	*
Q PERFORMING MEDICAL READINESS ACTIVITIES	1
R PERFORMING MANAGEMENT AND SUPERVISORY ACTIVITIES	*
S PERFORMING TRAINING ACTIVITIES	*

* Less than 1%

TABLE 14
REPRESENTATIVE TASKS PERFORMED BY AFSC 4T0X1
AD FIRST-ENLISTMENT PERSONNEL
(N=166)

TASKS	PERCENT MEMBERS PERFORMING	
B0106	Process specimens	88
B0075	Clean or disinfect laboratory work areas	88
B0081	Collect venous blood samples from outpatients	83
B0110	Retrieve medical laboratory test results	72
B0117	Validate test results	68
B0105	Prepare reagents, standards, or controls	68
B0079	Collect infant phenylketonuria (PKU) screen specimens	68
B0094	Perform maintenance on laboratory equipment	67
B0073	Centrifuge biological specimens	66
B0080	Collect venous blood samples from inpatients	66
B0114	Store biological specimens	66
B0116	Store reagents, standards, or controls, other than hazardous chemicals	65
B0086	Instruct patients on collections or submissions of biological specimens	64
B0113	Run patient controls	63
N0639	Perform urinalyses	62
B0103	Prepare patients for glucose tolerance tests	61
B0107	Remove or dispose of hazardous waste	60
A0056	Record specimen collections	60
A0045	Notify medical professionals of test results or testing delays	59
A0055	Record patient test results on laboratory slips	59
N0640	Perform urinalysis confirmatory tests	59
B0109	Remove or dispose of Privacy Act material	58
B0112	Run commercial assayed or unassayed controls	58
B0102	Prepare patients for blood culture collections	58
I0476	Perform erythrocyte sedimentation rate (ESR) tests	58
B0111	Review laboratory requests	58
A0057	Research missing patient information from laboratory request slips	57
B0077	Collect capillary blood samples	57
E0209	Perform blood glucose tests	57
N0641	Perform urine-reducing substances tests, such as clinitests	57
B0108	Remove or dispose of infectious waste	55
E0256	Perform sodium tests	55
E0207	Perform bilirubin tests	55
E0229	Perform high-density lipoprotein (HDL) cholesterol tests	55
E0263	Perform uric acid tests	55

* Average Number of Tasks Performed - 112

TABLE 15

EQUIPMENT USED BY AD
FIRST-ENLISTMENT AFSC 4T0X1 PERSONNEL

EQUIPMENT	1ST ENL (N=166)
Centrifuge, High Speed	83
Refrigerator, other than Blood Bank	75
Pipette, Manual	71
Microscope, Brightfield	68
Pipette, Bulb	61
Heat Block	60
Automated Urinalysis Strip Reader	58
Vortex Mixer	55
Lancet	54
Incubator, CO2	53
Laboratory Glassware	53
Personal Computer	52
Thermometer, Calibrated	51
Inoculating Loop	51
Blood Collecting Rocker or Mixer	50
Water Bath	49
Hoods	48
Centrifuge, Refrigerated	48
Pipette, Automated	47
Counter, Automated Differential	46
Counter, Blood Cell Differential	45
Hemacytometer	45
Thermometer, Manual	45

Training Emphasis (TE) and Task Difficulty (TD) Data

TE and TD data are secondary factors that can assist technical school personnel in deciding which tasks should be emphasized in entry-level training. These ratings, based on the judgments of senior career ladder NCOs working at operational units in the field, are collected to provide training personnel with a rank-ordering of those tasks in the JI considered important for first-enlistment personnel, along with a measure of the difficulty of the JI tasks. When combined with data on the percentages of first-enlistment personnel performing tasks, comparisons can then be made to determine if training adjustments are necessary. For example, tasks receiving high ratings on both task factors, accompanied by moderate to high percentages performing, may warrant resident training. Those tasks receiving high task factor ratings, but low percentages performing, may be more appropriately planned for OJT programs within the career ladder. Low task factor ratings may highlight tasks best omitted from training for first-enlistment personnel, but this decision must be weighed against percentages of personnel performing the tasks, command concerns, and criticality of the tasks.

To assist technical school personnel, AFOMS has developed a computer program that incorporates these secondary factors and the percentage of first-enlistment personnel performing each task to produce an Automated Training Indicator (ATI) for each task. These indicators correspond to training decisions listed and defined in the Training Decision Logic Table found in Attachment 2, AETCI 36-2601, and allows course personnel to quickly focus their attention on those tasks which are most likely to qualify for initial resident course consideration.

Table 16 shows TE raters reported that performing gram stains and being able to identify both gram-negative and gram-positive bacteria as being tasks that are important and they should have a high emphasis when the airmen are in training.

Table 17 shows TD raters reported writing laboratory computer programs and performing inductive coupled plasma (ICP) chromatography analyses to be among the most difficult tasks to learn. However, due to the low numbers of individuals performing these types of tasks, they would be inappropriate for inclusion in a resident curriculum and are more appropriately taught as OJT items. Table 18 shows the tasks that are high in automated training indicators (ATI).

Various lists of tasks, accompanied by TE and TD ratings, and where appropriate ATI information, are contained in the TRAINING EXTRACT package and should be reviewed in detail by training school personnel. (For a more detailed explanation of TE and TD ratings, see Task Factor Administration in the SURVEY METHODOLOGY section of this report.)

TABLE 16

TASKS RATED HIGHEST IN TRAINING EMPHASIS

TASKS	PERCENT MEMBERS PERFORMING				TRNG EMPH	TASK DIF
	4T0X1	1ST JOB (N=42)	4T0X1	1ST ENL (N=166)		
K0552 Perform gram stains	52	6.55	48	4.93		
I0468 Perform blood cell differentials	57	6.39	53	5.56		
K0525 Identify gram-negative bacteria to species level	50	6.33	46	5.58		
K0526 Identify gram-positive bacteria to species level	50	6.33	45	5.54		
H0428 Perform ABO blood groupings	52	6.27	45	4.43		
K0523 Identify aerobic bacteria	52	6.22	46	5.55		
I0474 Perform differentials on body fluids	36	6.20	36	5.94		
B0078 Collect chain-of-custody specimens	52	6.20	54	5.01		
B0081 Collect venous blood samples from outpatients	86	6.14	83	3.84		
B0079 Collect infant phenylketonuria (PKU) screen specimens	74	6.14	68	4.30		
I0473 Perform cell counts on fluids, other than CSF	48	6.14	40	5.82		
I0494 Perform semen analyses	52	6.14	49	5.17		
K0528 Isolate aerobic bacteria	52	6.14	45	4.65		
H0443 Perform Rh typing	50	6.08	46	4.63		
H0416 Issue blood or components	40	6.08	35	5.14		
N0639 Perform urinalyses	62	6.06	62	4.18		
E0229 Perform high-density lipoprotein (HDL) cholesterol tests	55	6.02	55	4.37		
B0113 Run patient controls	64	6.00	63	3.50		
E0209 Perform blood glucose tests	55	6.00	57	3.82		
I0472 Perform cell counts on CSF	48	6.00	40	5.78		
K0568 Perform primary cultures on aerobic specimens	48	6.00	45	4.39		
I0492 Perform RBC morphologies	57	5.98	54	4.77		
M0621 Perform fecal white blood cell smears	48	5.96	45	4.65		
B0106 Process specimens	86	5.96	88	3.37		
B0102 Prepare patients for blood culture collections	57	5.96	58	4.29		
B0105 Prepare reagents, standards, or controls	60	5.94	68	4.04		
B0080 Collect venous blood samples from inpatients	86	5.94	66	4.11		

* Average TE Rating is 2.98 with a Standard Deviation of 1.73 (High TE = 4.71)

TABLE 17

TASKS RATED HIGHEST IN TASK DIFFICULTY

TASKS	TASK DIFF	PERCENT MEMBERS PERFORMING				
		4T0X1	4T0X1	1 ST ENL	4T031	4T051
		1 ST JOB (N=42)	(N=166)	(N=166)	(N=126)	(N=532)
						4T071 (N=212)
C0137	Write laboratory computer programs	0	1	1	1	4
C0120	Develop internet or intranet web pages or sites	0	0	0	0	4
C0119	Coordinate designs or modifications of computer programs with programmers	0	1	1	1	6
C0118	Configure computers to interface with laboratory equipment	0	5	5	5	11
D0145	Perform inductive coupled plasma (ICP) chromatography analyses	0	1	1	1	1
C0136	Troubleshoot data management or information systems	5	3	3	3	9
D0146	Perform mass spectrophotometer chromatography analyses	0	1	1	1	2
D0143	Perform electron microscopies	0	1	1	0	1
A0024	Initiate Tricare region agreements	0	1	1	0	1
D0147	Perform nuclear accident response team procedures	0	1	1	1	1
D0142	Perform chromosome tests or engineering	0	0	0	0	1
C0128	Modify existing software to meet local needs	0	0	0	0	0
D0144	Perform gas chromatography analyses	0	1	1	2	2
C0130	Perform repairs on ADPE	0	1	1	1	3
C0131	Perform systems analyses on laboratory information systems	0	1	1	1	5
P0686	Perform quantitative DNA HIV tests	0	0	0	0	1
P0683	Perform DNA tuberculosis (TB) tests by PCR	0	0	0	0	1
H0415	Investigate transfection reactions	31	25	25	25	21
S0789	Develop formal course curricula, plans of instruction (POI's), or specialty training standards (STS's)	0	0	0	0	3
M0611	Identify parasites, other than pinworms	21	20	20	20	15
L0582	Perform adenovirus titers	0	1	1	0	1
K0542	Perform DNA plasmid profiles of bacteria	2	1	1	1	1
D0149	Perform subculture or continuous culture propagations on tissues	2	4	3	3	4
P0685	Perform gel electrophoresis tests	0	1	1	0	2
H0411	Deglycerolize red blood cells (RBCs)	2	1	1	1	5
L0586	Perform egg inoculations or harvestings	0	0	0	0	1

* Average TD Rating is 5.00 with a Standard Deviation of 1.00

TABLE 18

EXAMPLE TASKS HIGH IN AUTOMATED TRAINING INDICATOR (ATI) RATINGS

TASKS	PERCENT 1 ST ENL (N=166)	TNG EMP*	TASK DIFF**	ATI
B0105 Prepare reagents, standards, or controls	68	5.94	4.04	18
B0102 Prepare patients for blood culture collections	58	5.96	4.29	18
B0103 Prepare patients for glucose tolerance tests	61	5.73	4.00	18
I0468 Perform blood cell differentials	53	6.39	5.56	18
F0229 Perform high-density lipoprotein (HDL) cholesterol tests	55	6.02	4.37	18
B0078 Collect chain-of-custody specimens	54	6.20	5.01	18
B0079 Collect infant phenylketonuria (PKU) screen specimens	68	6.14	4.30	18
E0264 Perform urine glucose tests	54	5.31	4.15	18
B0117 Validate test results	68	5.22	4.66	18
B0086 Instruct patients on collections or submissions of biological specimens	64	5.49	4.00	18
N0639 Perform urinalyses	62	6.06	4.18	18
I0492 Perform RBC morphologies	54	5.98	4.77	18
B0094 Perform maintenance on laboratory equipment	67	5.69	4.84	18
B0080 Collect venous blood samples from inpatients	66	5.94	4.11	18
N0640 Perform urinalysis confirmatory tests	59	5.82	4.10	18
B0085 Instruct health care providers on laboratory procedures	51	4.04	4.46	17
F0311 Perform thyroxine (T4) tests	31	4.49	4.51	15
E0241 Perform lipase tests	34	4.39	4.13	15
G0377 Perform mononucleosis tests	32	4.69	4.12	15
F0266 Collect deoxyribonucleic acid (DNA) samples	41	4.04	4.22	15
K0521 Examine biological specimens	42	4.65	4.84	15
C0122 Enter or update computerized data, such as patient, QC, or supply data	30	4.31	4.46	15
B0093 Perform correlation or parallel studies	30	3.65	5.33	15
B0084 Instruct health care providers on collections or submissions of biological specimens	43	4.69	4.22	15
H0405 Annotate blood or blood component transfusion forms	30	4.41	4.55	15
F0310 Perform thyroid stimulating hormone (TSH) tests	35	4.69	4.48	15
E0204 Perform amylase isoenzyme tests	41	4.65	4.45	15
* Average TE Rating is 2.98 with a Standard Deviation of 1.73 (High TE = 4.71)				
** Average TD Rating is 5.00 with a Standard Deviation of 1.00				

Specialty Training Standard (STS)

A comprehensive review of STS 4T0X1, dated April 1995, compared STS items to survey data (based on the previously mentioned assistance from subject-matter experts in matching JI tasks to STS elements). STS elements containing general knowledge information, mandatory entries, subject-matter-knowledge-only requirements, or basic supervisory responsibilities were not examined. Task knowledge and performance elements of the STS were compared against the standard set forth in AETCI 36-2601 and AFI 36-2623 (i.e., include tasks performed or knowledge required by 30 percent or more of the personnel in a skill level [criterion group] of the AFS).

Overall, the STS provides very comprehensive coverage of the work performed by personnel in this career ladder. Tasks not referenced to any element of the STS are listed at the end of the STS computer listing. These tasks were reviewed to determine if there were any tasks concentrated around any particular function or job. Those technical tasks performed by 30 percent or more respondents of the STS target groups, but which were not referenced to any STS element, are displayed in Table 19. Training personnel and SMEs should review these unreferenced tasks to determine if inclusion in the STS is justified.

TABLE 19

EXAMPLES OF TECHNICAL TASKS PERFORMED BY 30 PERCENT OR MORE
AD GROUP MEMBERS AND NOT REFERENCED TO THE STS

TASKS	TRNG EMP*	PERCENT MEMBERS PERFORMING				TASK DIFF**	ATI	
		3-SKL		5-SKL				7-SKL
		LVL (N=126)	LVL (N=532)	LVL (N=212)	LVL			
B0078	6.20	57	57	57	57	5.01	18	
B0098	5.04	47	43	43	25	4.71	12	
B0117	5.22	67	68	68	54	4.66	18	
E0241	4.39	33	28	28	8	4.13	15	
E0243	5.12	46	43	43	17	3.91	10	
E0249	4.86	45	40	40	20	4.04	12	
F0266	4.04	43	30	30	14	4.22	15	
M0621	5.96	44	39	39	21	4.65	12	

* Average TE Rating is 2.98 with a Standard Deviation of 1.73 (High TE = 4.71)

** Average TD Rating is 5.00 with a Standard Deviation of 1.00

JOB SATISFACTION ANALYSIS

An examination of the job satisfaction indicators of various groups can give career ladder managers a better understanding of some of the factors which may affect the job performance of airmen in the career ladder. Attitude questions covering job interest, perceived utilization of talents and training, sense of accomplishment from work, and reenlistment intentions were included in the survey booklet to provide indications of job satisfaction.

Table 20 presents job satisfaction data for AFSC 4T0X1 TAFMS groups, together with TAFMS data for a comparative sample of Medical career ladders surveyed in 1998. All TAFMS groups rated perception of job interest, utilization of talents, utilization of training, and sense of accomplishment gained from work higher than the comparative sample. All career groups have similar reenlistment intentions to the comparative sample.

An indication of how job satisfaction perceptions have changed over time is provided in Table 21, where again TAFMS data for the current survey respondents are presented, along with data from the last occupational survey report. Reviewing this table, current survey satisfaction ratings for job interest, perceived utilization of talents, perceived utilization of training, sense of accomplishment from work, and reenlistment intentions have dropped slightly from the previous survey for all TAFMS groups. Reenlistment intentions for all TAFMS groups are lower than the 1996 survey. Reenlistment intentions for the career group dropped down from 72 percent in the previous survey to only 66 percent in the current survey.

In Table 22, a review of the job satisfaction ratings for the specialty clusters and jobs identified in this survey reveals about average satisfaction ratings for all areas among the Central Operations Cluster and high ratings in most areas for the other specialty clusters and jobs. Reenlistment intentions are low for the Immunology Cluster and the Systems Computer Job.

TABLE 20

COMPARISON OF JOB SATISFACTION INDICATORS BY TAFMS GROUPS
(PERCENT MEMBERS RESPONDING)

1-48 MOS TAFMS		49-96 MOS TAFMS		97+ MOS TAFMS	
1999 4T0X1 (N=166)	COMP SAMPLE* (N=359)	1999 4T0X1 (N=308)	COMP SAMPLE* (N=217)	1999 4T0X1 (N=398)	COMP SAMPLE* (N=428)
75	71	73	65	81	73
11	15	19	19	12	16
14	14	8	16	7	11
84	83	80	77	85	82
16	17	20	23	15	18
86	88	83	85	83	87
14	12	17	15	17	13
71	69	66	58	73	69
10	14	14	17	11	11
19	17	20	25	16	20
43	47	52	54	66	62
57	53	48	46	15	14
0	0	0	0	19	24

EXPRESSED JOB INTEREST:

INTERESTING
SO-SO
DULL

PERCEIVED UTILIZATION OF TALENTS:

FAIRLY WELL TO PERFECTLY
LITTLE OR NOT AT ALL

PERCEIVED UTILIZATION OF TRAINING:

FAIRLY WELL TO PERFECTLY
LITTLE OR NOT AT ALL

SENSE OF ACCOMPLISHMENT GAINED FROM
WORK:

SATISFIED
NEUTRAL
DISSATISFIED

REENLISTMENT INTENTIONS:

YES, OR PROBABLY YES
NO, OR PROBABLY NO
PLAN TO RETIRE

* Comparative sample of Medical career ladders surveyed in 1998 include 4J0X2 - Physical Therapy, 4P0X1 - Pharmacy, and 4U0X1-Orthotic.

TABLE 21

COMPARISON OF CURRENT SURVEY AND PREVIOUS SURVEY BY TAFMS GROUPS
(PERCENT MEMBERS RESPONDING)

	1-48 MOS TAFMS		49-96 MOS TAFMS		97+ MOS TAFMS	
	1999 4T0X1 (N=166)	1996 4T0X1 (N=424)	1999 4T0X1 (N=308)	1996 4T0X1 (N=311)	1999 4T0X1 (N=398)	1996 4T0X1 (N=408)
<u>EXPRESSED JOB INTEREST:</u>						
INTERESTING	75	85	73	87	81	83
SO-SO	11	10	19	13	12	12
DULL	14	5	8	3	7	5
<u>PERCEIVED UTILIZATION OF TALENTS:</u>						
FAIRLY WELL TO PERFECTLY	84	88	80	92	85	91
LITTLE OR NOT AT ALL	16	12	20	8	15	10
<u>PERCEIVED UTILIZATION OF TRAINING:</u>						
FAIRLY WELL TO PERFECTLY	86	91	83	90	83	86
LITTLE OR NOT AT ALL	14	9	17	10	17	14
<u>SENSE OF ACCOMPLISHMENT GAINED</u>						
<u>FROM WORK:</u>						
SATISFIED	71	81	66	81	73	77
NEUTRAL	10	9	14	9	11	8
DISSATISFIED	19	10	20	10	16	15
<u>REENLISTMENT INTENTIONS:</u>						
YES, OR PROBABLY YES	43	51	52	67	66	72
NO, OR PROBABLY NO	57	49	48	32	15	8
PLAN TO RETIRE	0	0	0	1	19	20

TABLE 22

COMPARISON OF JOB SATISFACTION INDICATORS BY AD SPECIALTY JOBS
(PERCENT MEMBERS RESPONDING)

	Clinical Chemistry Cluster (N=450)	Central Operations Cluster (N=72)	Bacterio- logical Job (N=55)	Blood Banking Job (N=60)	Immunology Cluster (N=26)	Research Job (N=8)
INTERESTING	76	64	84	80	77	88
SO-SO	16	14	11	13	8	13
DULL	8	22	5	7	15	0
PERCEIVED UTILIZATION OF TALENTS:						
FAIRLY WELL TO PERFECTLY	84	69	93	83	70	100
LITTLE OR NOT AT ALL	16	31	7	17	30	0
PERCEIVED UTILIZATION OF TRAINING:						
FAIRLY WELL TO PERFECTLY	91	66	97	90	70	75
LITTLE OR NOT AT ALL	9	34	3	10	30	25
SENSE OF ACCOMPLISHMENT GAINED FROM WORK:						
SATISFIED	71	58	80	67	73	88
NEUTRAL	13	16	7	13	8	0
DISSATISFIED	16	26	13	20	19	12
REENLISTMENT INTENTIONS:						
YES, OR PROBABLY YES	56	56	67	60	38	75
NO, OR PROBABLY NO	40	35	31	37	62	25
WILL RETIRE	4	9	2	3	0	0

EXPRESSED JOB INTEREST:

INTERESTING
SO-SO
DULL

PERCEIVED UTILIZATION OF TALENTS:

FAIRLY WELL TO PERFECTLY
LITTLE OR NOT AT ALL

PERCEIVED UTILIZATION OF TRAINING:

FAIRLY WELL TO PERFECTLY
LITTLE OR NOT AT ALL

SENSE OF ACCOMPLISHMENT GAINED FROM WORK:

SATISFIED
NEUTRAL
DISSATISFIED

REENLISTMENT INTENTIONS:

YES, OR PROBABLY YES
NO, OR PROBABLY NO
WILL RETIRE

TABLE 22 (CONTINUED)

COMPARISON OF JOB SATISFACTION INDICATORS BY AD SPECIALTY JOBS
(PERCENT MEMBERS RESPONDING)

	Environmental Chemistry Job (N=9)	Supply Job (N=5)	Instructor Job. (N=24)	Supervisor Job (N=79)	Systems Computer Job (N=10)
INTERESTING	100	80	88	81	90
SO-SO	0	0	12	13	0
DULL	0	20	0	6	10
FAIRLY WELL TO PERFECTLY LITTLE OR NOT AT ALL	89 11	80 20	96 4	87 13	80 20
FAIRLY WELL TO PERFECTLY LITTLE OR NOT AT ALL	55 45	60 40	87 13	88 12	20 80
SATISFIED	89	80	71	70	90
NEUTRAL	0	0	12	10	0
DISSATISFIED	11	20	17	20	10
YES, OR PROBABLY YES	67	60	71	59	30
NO, OR PROBABLY NO	22	20	12	13	20
WILL RETIRE	11	20	17	28	50

EXPRESSED JOB INTEREST:

INTERESTING
SO-SO
DULL

PERCEIVED UTILIZATION OF TALENTS:

FAIRLY WELL TO PERFECTLY
LITTLE OR NOT AT ALL

PERCEIVED UTILIZATION OF TRAINING:

FAIRLY WELL TO PERFECTLY
LITTLE OR NOT AT ALL

SENSE OF ACCOMPLISHMENT GAINED FROM WORK:

SATISFIED
NEUTRAL
DISSATISFIED

REENLISTMENT INTENTIONS:

YES, OR PROBABLY YES
NO, OR PROBABLY NO
WILL RETIRE

IMPLICATIONS

This survey was initiated to provide current job and task data for use in evaluating the AFMAN 36-2108 *Specialty Description* and appropriate training documents.

Survey results indicate that the present classification structure, as described in the latest specialty description, accurately portrays the jobs performed by the members of this career ladder. Career ladder training documents appear, on the whole, to be well supported by survey data, but require review to ensure appropriate proficiency coding.

Job satisfaction is fairly higher for all TAFMS when compared to the comparative sample of like AFSCs and is a little lower when compared to the previous survey.

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APPENDIX A

**SELECTED REPRESENTATIVE TASKS PERFORMED
BY SPECIALTY JOB GROUPS**

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TABLE A1
CLINICAL CHEMISTRY CLUSTER

TASKS		PERCENT MEMBERS PERFORMING (N=450)
B0106	Process specimens	96
B0081	Collect venous blood samples from outpatients	94
B0075	Clean or disinfect laboratory work areas	92
N0639	Perform urinalyses	89
B0094	Perform maintenance on laboratory equipment	88
B0110	Retrieve medical laboratory test results	87
B0105	Prepare reagents, standards, or controls	87
E0209	Perform blood glucose tests	86
E0217	Perform cholesterol tests	86
E0207	Perform bilirubin tests	86
B0117	Validate test results	85
N0640	Perform urinalysis confirmatory tests	84
E0256	Perform sodium tests	84
E0210	Perform calcium tests	84
N0641	Perform urine-reducing substances tests, such as clinitests	84
B0112	Run commercial assayed or unassayed controls	83
E0252	Perform potassium tests	83
E0216	Perform chloride tests	83
E0202	Perform alkaline phosphatase tests	83
E0200	Perform albumin tests	83
E0263	Perform uric acid tests	83
E0220	Perform creatinine tests	82
I0476	Perform erythrocyte sedimentation rate (ESR) tests	82
E0261	Perform triglyceride tests	82
B0116	Store reagents, standards, or controls, other than hazardous chemicals	82
B0114	Store biological specimens	81
E0206	Perform aspartate amino transferase (AST) tests	81
E0199	Perform alanine amino transferase (ALT) tests	80
E0211	Perform carbon dioxide tests	80
I0468	Perform blood cell differentials	79
E0229	Perform high-density lipoprotein (HDL) cholesterol tests	79
E0226	Perform gamma glutamyl transpeptidase (GGT) tests	79
B0078	Collect chain-of-custody specimens	79
I0492	Perform RBC morphologies	78
B0086	Instruct patients on collections or submissions of biological specimens	78
E0219	Perform creatinine kinase (CK) tests	78
B0077	Collect capillary blood samples	77

TABLE A2
CENTRAL OPERATIONS CLUSTER

TASKS		PERCENT MEMBERS PERFORMING (N=72)
B0081	Collect venous blood samples from outpatients	96
B0106	Process specimens	85
B0086	Instruct patients on collections or submissions of biological specimens	81
B0079	Collect infant phenylketonuria (PKU) screen specimens	76
B0080	Collect venous blood samples from inpatients	75
B0075	Clean or disinfect laboratory work areas	75
B0111	Review laboratory requests	71
A0056	Record specimen collections	68
B0110	Retrieve medical laboratory test results	68
B0103	Prepare patients for glucose tolerance tests	68
B0077	Collect capillary blood samples	67
B0085	Instruct health care providers on laboratory procedures	67
B0109	Remove or dispose of Privacy Act material	64
B0102	Prepare patients for blood culture collections	63
A0057	Research missing patient information from laboratory request slips	61
B0078	Collect chain-of-custody specimens	60
B0108	Remove or dispose of infectious waste	59
A0049	Prepare biological specimens for shipment	56
B0084	Instruct health care providers on collections or submissions of biological specimens	56
B0065	Aliquot samples, other than blood components	54
A0011	Coordinate laboratory test issues with requesters	53
A0045	Notify medical professionals of test results or testing delays	51
B0107	Remove or dispose of hazardous waste	51
B0073	Centrifuge biological specimens	50
A0019	Identify and report equipment or supply problems	47
B0114	Store biological specimens	46
A0041	Maintain supply stock levels	44
B0117	Validate test results	42
N0630	Measure 24-hour urine volumes	40
A0006	Compile data for records, reports, logs, or trend analyses	40
B0094	Perform maintenance on laboratory equipment	39
S0786	Conduct on-the-job training (OJT)	37
A0036	Maintain hardcopy laboratory slips	36
R0745	Counsel subordinates concerning personal matters	36
B0092	Perform bacterial disinfections	35
B0091	Observe specimen collections during urine drug testings	35
R0768	Inspect personnel for compliance with military standards	33
A0013	Deliver laboratory slips or reports to clinics or wards	33

TABLE A3
BACTERIOLOGICAL JOB

TASKS		PERCENT MEMBERS PERFORMING (N=55)
K0552	Perform Gram stains	100
K0535	Perform blood cultures	100
K0528	Isolate aerobic bacteria	98
K0525	Identify gram-negative bacteria to species level	96
K0526	Identify gram-positive bacteria to species level	96
K0523	Identify aerobic bacteria	96
K0568	Perform primary cultures on aerobic specimens	95
K0570	Perform subcultures on aerobic specimens	95
K0529	Isolate anaerobic bacteria	93
K0553	Perform groupings of streptococci	93
K0527	Identify or record colony morphologies	91
K0569	Perform primary cultures on anaerobic specimens	91
K0571	Perform subcultures on anaerobic specimens	91
K0524	Identify anaerobic bacteria	89
B0106	Process specimens	85
K0551	Perform gonorrhea isolation tests	85
B0075	Clean or disinfect laboratory work areas	85
K0541	Perform colony counts of bacteria	84
K0522	Examine stained specimens	84
K0543	Perform disc diffusion susceptibility tests, such as Kirby-Bauer	84
K0557	Perform optochin taxo-P tests	84
K0530	Maintain stocks of QC organisms	84
K0533	Perform bacitracin taxo-A tests	82
K0562	Perform rapid biochemical spot tests, such as indole or catalase	80
K0546	Perform enteric pathogen screens, such as salmonella or vibrio	80
M0618	Perform fecal occult blood screens	78
K0555	Perform minimum inhibitory concentration (MIC) susceptibility tests	78
M0621	Perform fecal white blood cell smears	78
K0563	Perform rapid identification screens	75
B0080	Collect venous blood samples from inpatients	73
K0521	Examine biological specimens	71
B0081	Collect venous blood samples from outpatients	69
K0534	Perform bactericidal assay susceptibility tests	67
M0622	Perform macroscopic examinations of parasitology specimens, such as color, appearance, or consistency	67
B0114	Store biological specimens	67
M0612	Identify pinworms	67
L0578	Identify yeasts	64

TABLE A4
BLOOD BANKING JOB

TASKS		PERCENT MEMBERS PERFORMING (N=60)
H0460	Store blood or blood components	100
H0428	Perform ABO groupings	98
H0453	Record blood bank refrigerator temperatures	98
H0443	Perform Rh typing	97
H0459	Ship or receive blood or blood components	97
H0445	Prepare blood components for shipment	95
H0420	Maintain blood inventories	90
H0417	Label blood or blood components	90
H0416	Issue blood or blood components	85
B0075	Clean or disinfect laboratory work areas	85
H0434	Perform direct antiglobulin tests (DATs)	85
H0457	Select packed cells	83
H0450	Prepare packed RBCs	83
B0106	Process specimens	82
H0447	Prepare fresh frozen plasma	82
H0456	Select fresh frozen plasma	82
H0461	Thaw blood or blood components	82
H0433	Perform blood group antigen tests, other than ABO or Rh	82
H0415	Investigate transfusion reactions	82
H0419	Maintain blood component disposition records	80
H0405	Annotate blood or blood component transfusion forms	80
H0427	Perform ABO blood subgroupings	80
B0089	Monitor alarm systems, such as freezer or refrigerator alarms	80
H0414	Identify antibodies	80
B0081	Collect venous blood samples from outpatients	80
H0412	Emergency release blood products	80
H0438	Perform indirect antiglobulin tests (IATs)	78
H0458	Select platelets	78
H0432	Perform autologous blood transfusion tests	78
H0406	Cancel crossmatches	78
H0435	Perform donor phlebotomies	75
H0418	Maintain antibody files	75
B0080	Collect venous blood samples from inpatients	75
H0404	Annotate blood donor forms	73
H0437	Perform fetal rosette screens	73
H0455	Screen donors for blood or blood component collections	72
H0436	Perform elution tests	72
H0424	Manufacture packed RBCs	70

TABLE A5
IMMUNOLOGY CLUSTER

TASKS		PERCENT MEMBERS PERFORMING (N=26)
B0106	Process specimens	96
B0105	Prepare reagents, standards, or controls	96
B0075	Clean or disinfect laboratory work areas	96
B0094	Perform maintenance on laboratory equipment	92
B0116	Store reagents, standards, or controls, other than hazardous chemicals	88
B0112	Run commercial assayed or unassayed controls	85
B0114	Store biological specimens	81
B0107	Remove or dispose of hazardous waste	81
B0110	Retrieve medical laboratory test results	81
B0111	Review laboratory requests	77
B0108	Remove or dispose of infectious waste	77
B0117	Validate test results	69
B0113	Run patient controls	69
B0074	Clean laboratory glassware	58
A0057	Research missing patient information from laboratory request slips	54
B0109	Remove or dispose of Privacy Act material	54
A0052	Prepare worklists	54
A0045	Notify medical professionals of test results or testing delays	50
B0073	Centrifuge biological specimens	50
B0071	Calibrate pipettes	50
B0097	Perform proficiency survey procedures	46
A0006	Compile data for records, reports, logs, or trend analyses	46
A0041	Maintain supply stock levels	42
A0055	Record patient test results on laboratory slips	42
G0393	Perform syphilis antibody screens	42
B0115	Store hazardous chemicals, such as acids or carcinogens	42
B0098	Perform serial dilutions	42
A0047	Pick up or deliver equipment or supplies	42
A0005	Collect or analyze workload data	42
B0080	Collect venous blood samples from inpatients	42
A0019	Identify and report equipment or supply problems	42
G0323	Perform antinuclear antibody (ANA) screens	38
G0320	Perform anti-DNA screens	38
G0324	Perform ANA titers	38
G0394	Perform syphilis antibody titers	38
G0386	Perform rheumatoid factor antibody screens	38
S0786	Conduct on-the-job training (OJT)	38
B0081	Collect venous blood samples from outpatients	38

TABLE A6
RESEARCH JOB

TASKS		PERCENT MEMBERS PERFORMING (N=8)
B0075	Clean or disinfect laboratory work areas	100
B0074	Clean laboratory glassware	100
B0105	Prepare reagents, standards, or controls	100
B0073	Centrifuge biological specimens	100
B0114	Store biological specimens	100
A0019	Identify and report equipment or supply problems	100
B0094	Perform maintenance on laboratory equipment	100
B0116	Store reagents, standards, or controls, other than hazardous chemicals	100
B0115	Store hazardous chemicals, such as acids or carcinogens	100
D0139	Collect or analyze research data	88
D0141	Develop technical protocols for research projects	88
B0067	Calculate test statistics, such as means, standard deviations (SDs), or coefficients of variance (CVs)	88
B0083	Inspect laboratory glassware	88
B0112	Run commercial assayed or unassayed controls	75
A0030	Inventory equipment or supplies	75
A0016	Develop equipment checklists	75
B0071	Calibrate pipettes	75
B0066	Calculate medical laboratory general chemical formulas, such as molar, normal, or percent solutions	75
R0747	Determine or establish work assignments or priorities	75
B0093	Perform correlation or parallel studies	75
A0012	Coordinate maintenance of equipment with appropriate agencies	75
B0098	Perform serial dilutions	75
B0099	Perform sterilization	75
B0081	Collect venous blood samples from outpatients	75
B0089	Monitor alarm systems, such as freezer or refrigerator alarms	75
B0106	Process specimens	63
B0117	Validate test results	63
C0122	Enter or update computerized data, such as patient, QC, or supply data	63
R0752	Develop or establish work methods or procedures	63
B0065	Aliquot samples, other than blood components	63
A0018	Evaluate serviceability of equipment or supplies	63
D0140	Collect or preserve cultures or samples from laboratory animals	63
A0035	Maintain documentation on items requiring periodic inspections or calibrations	63
A0041	Maintain supply stock levels	63
R0753	Develop or establish work schedules	63
K0522	Examine stained specimens	63
B0110	Retrieve medical laboratory test results	63
B0108	Remove or dispose of infectious waste	63

TABLE A7
ENVIRONMENTAL CHEMISTRY JOB

TASKS		PERCENT MEMBERS PERFORMING (N=9)
D0158	Perform environmental analyses on water samples	100
D0157	Perform environmental analyses on waste samples	100
D0156	Perform environmental analyses on soil samples	89
B0116	Store reagents, standards, or controls, other than hazardous chemicals	89
B0074	Clean laboratory glassware	89
B0115	Store hazardous chemicals, such as acids or carcinogens	89
B0107	Remove or dispose of hazardous waste	89
D0187	Prepare water samples for environmental analyses	78
B0105	Prepare reagents, standards, or controls	78
D0184	Prepare waste samples for environmental analyses	78
D0181	Prepare soil samples for environmental analyses	67
B0094	Perform maintenance on laboratory equipment	67
B0075	Clean or disinfect laboratory work areas	67
B0117	Validate test results	56
B0083	Inspect laboratory glassware	56
B0065	Aliquot samples, other than blood components	56
A0030	Inventory equipment or supplies	56
E0249	Perform pH tests	44
D0152	Perform environmental analyses on air samples	44
D0154	Perform environmental analyses on filters	44
B0070	Calibrate pH meters	44
A0031	Inventory hazardous materials or hazardous waste	44
D0146	Perform mass spectrophotometer chromatography analyses	33
D0144	Perform gas chromatography analyses	33
B0112	Run commercial assayed or unassayed controls	33
A0006	Compile data for records, reports, logs, or trend analyses	33
B0106	Process specimens	33
A0005	Collect or analyze workload data	33
D0155	Perform environmental analyses on industrial products	33
A0022	Initiate maintenance requests for military or contractor maintained equipment	33
A0019	Identify and report equipment or supply problems	33
C0122	Enter or update computerized data, such as patient, QC, or supply data	22
B0098	Perform serial dilutions	22
D0163	Perform industrial hygiene analyses on soil samples	22
D0165	Perform industrial hygiene analyses on water samples	22
D0145	Perform inductive coupled plasma (ICP) chromatography analyses	22
D0164	Perform industrial hygiene analyses on waste samples	22

TABLE A8
SUPPLY JOB

TASKS		PERCENT MEMBERS PERFORMING (N=5)
A0041	Maintain supply stock levels	100
A0030	Inventory equipment or supplies	100
A0060	Track equipment or supply purchases	100
A0054	Prepare requisitions for local purchase of equipment or supplies	100
A0047	Pick up or deliver equipment or supplies	100
A0004	Brief supervisors concerning purchases of equipment or supplies	100
A0053	Prepare requisitions for equipment or supplies, other than for local purchase	80
A0034	Maintain activity issue, back order, or issue turn-in lists of supplies or equipment	80
A0032	Issue or log turn-ins of equipment or supplies	80
A0001	Annotate shopping guides	80
A0061	Turn in equipment or supplies	80
A0046	Perform receiving inspections of incoming equipment or supplies	60
A0038	Maintain organizational equipment or supply records	60
B0065	Aliquot samples, other than blood components	60
B0081	Collect venous blood samples from outpatients	60
A0019	Identify and report equipment or supply problems	60
A0059	Review purchase requests for equipment or supplies	60
B0115	Store hazardous chemicals, such as acids or carcinogens	60
B0116	Store reagents, standards, or controls, other than hazardous chemicals	60
A0039	Maintain property custodian authorization / custody receipt listings (CA/CRLs)	60
A0022	Initiate maintenance requests for military or contractor maintained equipment	60
B0105	Prepare reagents, standards, or controls	60
B0074	Clean laboratory glassware	60
A0031	Inventory hazardous materials or hazardous waste	40
D0139	Collect or analyze research data	40
A0010	Complete shipping documents, other than for customs	40
A0018	Evaluate serviceability of equipment or supplies	40
B0080	Collect venous blood samples from inpatients	40
B0107	Remove or dispose of hazardous waste	40
B0106	Process specimens	40
A0025	Initiate unsatisfactory reports on equipment or supplies	40
P0675	Extract DNA	40
D0150	Perform tissue culture cell counts	40
B0075	Clean or disinfect laboratory work areas	40
D0149	Perform subculture or continuous culture propagations on tissues	40
A0005	Collect or analyze workload data	20
A0049	Prepare biological specimens for shipment	20
R0772	Review budget requirements	20

TABLE A9
INSTRUCTOR JOB

TASKS		PERCENT MEMBERS PERFORMING (N=24)
S0796	Evaluate progress of trainees	96
S0798	Maintain training records or files	96
S0787	Counsel trainees on training progress	96
S0790	Develop training programs, plans, or procedures	96
S0792	Develop or procure training materials or aids	96
S0785	Conduct formal course classroom training	92
S0795	Evaluate effectiveness of training programs, plans, or procedures	88
S0799	Personalize lesson plans	88
S0788	Determine training requirements	88
S0797	Inspect training materials or aids for operation or suitability	88
S0793	Establish or maintain study reference files	88
S0783	Brief personnel concerning training programs or matters	83
S0782	Administer or score tests	79
S0791	Develop written tests	79
S0784	Complete student entry or withdrawal forms	75
S0786	Conduct on-the-job training (OJT)	71
S0789	Develop formal course curricula, plans of instruction (POIs), or specialty training standards (STSs)	71
S0794	Evaluate training methods or techniques of instructors	71
R0768	Inspect personnel for compliance with military standards	71
R0745	Counsel subordinates concerning personal matters	67
R0762	Evaluate personnel for compliance with performance standards	63
R0744	Conduct supervisory orientations for newly assigned personnel	63
R0747	Determine or establish work assignments or priorities	58
R0769	Interpret policies, directives, or procedures for subordinates	58
A0015	Destroy outdated records or reports	58
R0753	Develop or establish work schedules	54
R0739	Conduct general meetings, such as staff meetings, briefings, conferences, or workshops	54
R0740	Conduct self-inspections or self-assessments	54
R0767	Initiate actions required due to substandard performance of personnel	54
R0770	Investigate accidents or incidents	54
R0737	Assign personnel to work areas or duty positions	50
C0123	Initiate or update computer-based instructions	50
B0075	Clean or disinfect laboratory work areas	50
A0030	Inventory equipment or supplies	50
B0116	Store reagents, standards, or controls, other than hazardous chemicals	50
A0007	Complete accident or incident reports	50

TABLE A10
SUPERVISOR JOB

TASKS		PERCENT MEMBERS PERFORMING (N=79)
R0745	Counsel subordinates concerning personal matters	96
R0780	Write recommendations for awards or decorations	94
R0742	Conduct supervisory performance feedback sessions	92
R0762	Evaluate personnel for compliance with performance standards	91
R0768	Inspect personnel for compliance with military standards	90
R0779	Write or indorse military performance reports	89
R0744	Conduct supervisory orientations for newly assigned personnel	89
R0763	Evaluate personnel for promotion, demotion, reclassification, or special awards	87
R0769	Interpret policies, directives, or procedures for subordinates	85
A0005	Collect or analyze workload data	84
R0747	Determine or establish work assignments or priorities	84
A0006	Compile data for records, reports, logs, or trend analyses	82
A0004	Brief supervisors concerning purchases of equipment or supplies	82
R0737	Assign personnel to work areas or duty positions	81
R0758	Establish performance standards for subordinates	81
R0775	Schedule personnel for temporary duty (TDY) assignments, leaves, or passes	81
R0767	Initiate actions required due to substandard performance of personnel	81
R0739	Conduct general meetings, such as staff meetings, briefings, conferences, or workshops	80
R0746	Determine or establish logistics requirements, such as personnel, equipment, supplies, or workspace	80
A0019	Identify and report equipment or supply problems	78
A0030	Inventory equipment or supplies	78
R0753	Develop or establish work schedules	76
R0740	Conduct self-inspections or self-assessments	76
A0012	Coordinate maintenance of equipment with appropriate agencies	73
A0061	Turn in equipment or supplies	73
R0770	Investigate accidents or incidents	73
A0053	Prepare requisitions for equipment or supplies, other than for local purchase	72
A0032	Issue or log turn-ins of equipment or supplies	72
A0043	Maintain or update workload data	71
A0054	Prepare requisitions for local purchases or equipment or supplies	71
R0772	Review budget requirements	71
A0018	Evaluate serviceability of equipment and supplies	71
R0757	Establish organizational policies, such as operating instructions (OIs) or standard operating procedures (SOPs)	70
A0060	Track equipment or supply purchases	70
S0783	Brief personnel concerning training programs or matters	70

TABLE A11
SYSTEMS COMPUTER JOB

TASKS		PERCENT MEMBERS PERFORMING (N=10)
C0136	Troubleshoot data management or information systems	100
C0129	Perform data base inquiries	100
C0128	Modify existing software to meet local needs	90
C0121	Distribute or deliver computer-generated products	90
C0131	Perform systems analyses on laboratory information systems	90
C0135	Test new computer hardware or software products	90
C0119	Coordinate designs or modifications of computer programs with programmers	80
C0118	Configure computers to interface with laboratory equipment	80
C0122	Enter or update computerized data, such as patient, QC, or supply data	70
A0006	Compile data for records, reports, logs, or trend analyses	70
R0757	Establish organizational policies, such as operating instructions (OIs) or standard operating procedures (SOPs)	60
C0123	Initiate or update computer-based instructions	60
A0020	Identify and report suspected security compromises	60
A0005	Collect or analyze workload data	60
C0120	Develop internet or intranet web pages or sites	50
C0137	Write laboratory computer programs	50
B0081	Collect venous blood samples from outpatients	50
C0134	Run computer cables	50
C0132	Perform preventive maintenance on ADPE	50
B0110	Retrieve medical laboratory test results	50
B0080	Collect venous blood samples from inpatients	50
C0124	Maintain access lists of personnel authorized to use automated data processing equipment (ADPE)	50
A0011	Coordinate laboratory test issues with requesters	50
A0033	Maintain accreditation regulations	50
C0130	Perform repairs on ADPE	40
R0752	Develop or establish work methods or procedures	40
S0786	Conduct on-the-job training (OJT)	40
A0030	Inventory equipment or supplies	40
A0063	Write staff studies, surveys, or special reports, other than training reports	40
R0780	Write recommendations for awards or decorations	40
R0750	Develop self-inspection or self-assessment program checklists	40
R0779	Write or indorse military performance reports	40
R0740	Conduct self-inspections or self-assessments	40

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